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Test Report for AN/FPS-124 Field Testing of False Reports Study

By

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13. ABSTRACT *(Maximum 200 words)*
This report describes the test results obtained at Barter Island, Alaska, for the AN/FPS-124 Unattended Radar (UAR) field testing of the mission software modifications developed during the Reduction of False Reports Study. Field tests were conducted at the Bar-Main site from August 14, 1990 to August 21,1990. The field testing consisted of false report rate measurements, probability of reporting using a towed sphere, and target probability of reporting during high turn rate (high g) maneuvers. With the mission software patches installed, there was an improvement in the false target report rate and in the probability of target reporting during high g maneuvers. The towed sphere tests showed that the system sensitivity, with the modified mission software installed, meets the North Warning System specification requirements.

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EXECUTIVE SUMMARY

BACKGROUND

An excessive number of false target reports were noted from the AN/FPS-124 radar installed at Barter Island Alaska. These target reports were generated by the large bird population that visits the north slope of Alaska during the spring and summer months, and by radio frequency (RF) interference from adjacent radar sites and oil drilling rig communications equipment. The high false report rate not only overloaded the regional operations control center (ROCC), but also impacted the UAR resources from initiating new tracks and implementing dedicated track service requests for maneuvering targets.

The Unisys Corporation was awarded a study contract to develop and test modifications to the UAR mission software. The purpose of the study was to reduce the number of false reports to 15 or less per scan, in accordance with the North Warning System Specification requirements.

PURPOSE

This report discusses the testing conducted at Barter Island, Alaska, during August 1990, and the test results of the mission software patches developed to reduce the number of false reports. Target report data was collected with both the baseline mission software and with *software patches installed on two consecutive days to determine the improvement in the false* report rate. Probability of reporting tests using a towed sphere were run with both the baseline software and with the software patches to determine if there was any loss in radar sensitivity due to the software changes. In addition, although not a study requirement, software modifications were made to the tracker algorithms to improve the tracking of high turn rate (high g) maneuvering targets. These changes were tested, using government designed tests and assets, at the conclusion of the test program at Bar-Main.

The program patches, tested at Bar-Main, reduced the false target report rate to below the North Warning System requirements of 15 false reports a frame, provided a radar sensitivity that meets the system requirements, and improved the radar performance during high g maneuvers.

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SECTION 1

INTRODUCTION

This report describes the test results obtained at Barter Island, Alaska, for the AN/FPS-124 Unattended Radar (UAR), on the Reduction of False Reports Study. Field tests were conducted at the Bar-Main site from August 14, 1990 to August 21, 1990.

The purpose of the Unisys Corporation study was to develop and test modifications to the operational software to reduce the number of false reports during periods of heavy bird population and radio frequency (RF) interference. The number of false reports in the spring and summer months exceed the North Warning System Specification for a maximum of 15 false reports per scan. The high report activity not only overloaded the regional operations control center (ROCC), but also impacted the radar resources available for initiating new target tracks and dedicated tracks for maneuvering targets. The software patches developed and installed as part of the Reduction of False Reports Study covered six areas of the operational software: load monitor and control, zero Doppler filter out-of-gate search detections, track credibility logic, maneuver sensing and adaptation, long range frequency pulse repetition time (PRT) selection to prevent ghosting, and the performance monitoring/fault isolation (PMFI) patches developed as part of ECP 57. The first three areas were specifically for the Reduction of False Reports Study.

Tests were run with and without the software patches to determine the improvement in the false target report rate and the impact of the software modifications on the probability of reporting. ESD/TNU was able to obtain the services of a Lear Jet 25 aircraft to run high gravitational (g) maneuvers against the UAR. Although not part of the study, the high turn rate (high g) maneuvers test results are described in this report.

The modifications to the operational software reduced the false report rate to below the North Warning System Specification requirements. False target reports have been reduced to below two per radar scan, and reports due to migrating birds can be eliminated by velocity threshold selection. The towed sphere tests showed that the system sensitivity with the modified software installed meets the North Warning System Specification requirements. The software patches for maneuver sensing and adaptation improved the radar performance during high turn rate (high g) maneuvers.

SECTION 2

FALSE TARGET REPORTS

False target reports were observed at Bar-Main during the spring and summer months. These reports are attributable to the nesting and flocking activities of the large bird population that visits the north slope area of Alaska. These false reports appear as transient target reports, with track velocities up to 600 knots. The large number of reports (see figure 2-1) averaging 41 per scan, with peak reports of 78 per scan, overload the ROCC. In addition, the average active track count in the UAR data processor during this period (spring and summer) is near the 200 active track limit and impacts the radar resources for initiating new tracks and generating dedicated track requests for existing targets. The high track count associated with these false reports has been isolated to out-of-gate search detections in the zero Doppler filter. Since the bird population is spatially distributed over large areas, various flocks in the radar envelope can combine to generate credible tracks that will report for a few scans. Track initialization, verification, and track updates from random scatters can generate reports containing high velocities.

The software patches developed to reduce the false reports per scan were 1) changes to the load monitor and control, 2) not allowing slow moving targets (Doppler filter zero) out-of-gate detections from initiating a track, and 3) changing the criteria for a credible track. The software patches used in the field testing at Bar-Main are listed in appendix A.

The following tests were run to demonstrate the false target report reduction:

1. Baseline software with 60 knots velocity threshold
2. Baseline software with 90 knots velocity threshold
3. Modified software with 60 knots velocity threshold
4. Modified software with 90 knots velocity threshold
5. Modified software with 40 knots velocity threshold

Target reports from the Bar-Main site using the baseline software were collected for a twenty-hour period to obtain a calibration on the UAR. In addition to the transient type false reports observed in the spring and early summer months, many east-to-west migratory bird tracks were observed during the test period. The strong east-to-west winds, up to 30 knots at ground level, were sufficient to provide enough tail wind for the migrating flocks to exceed the 60 knot target reporting threshold. The average reports per scan during this period is shown in figure 2-2. The reports are cyclical in nature, peaking to 30 to 40 reports per scan prior to sundown, after sunrise, and at 10 a.m. The average active track count in the data processor ranged between 150 and 200 tracks. Appendix B shows plan position indicator (PPI) plots of the false target reports and the reports/tracks per scan history.

Appendix C shows the PPI plots and report/track per scan history using the modified software. The T32 and T33 software patches effectively removed the transient type false reports observed at Bar-Main during the spring and early summer months. However,

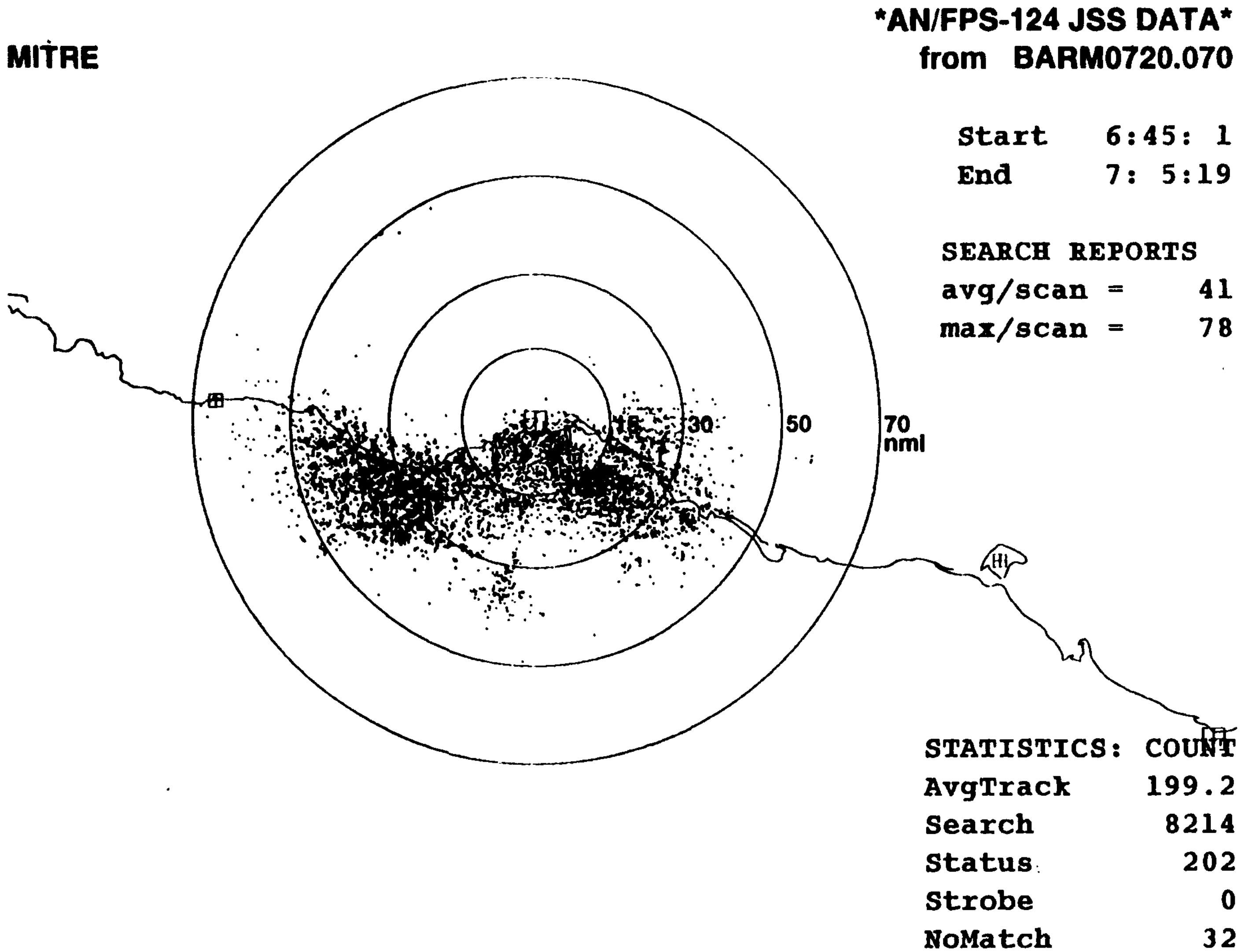


Figure 2-1. Bar-M False Reports

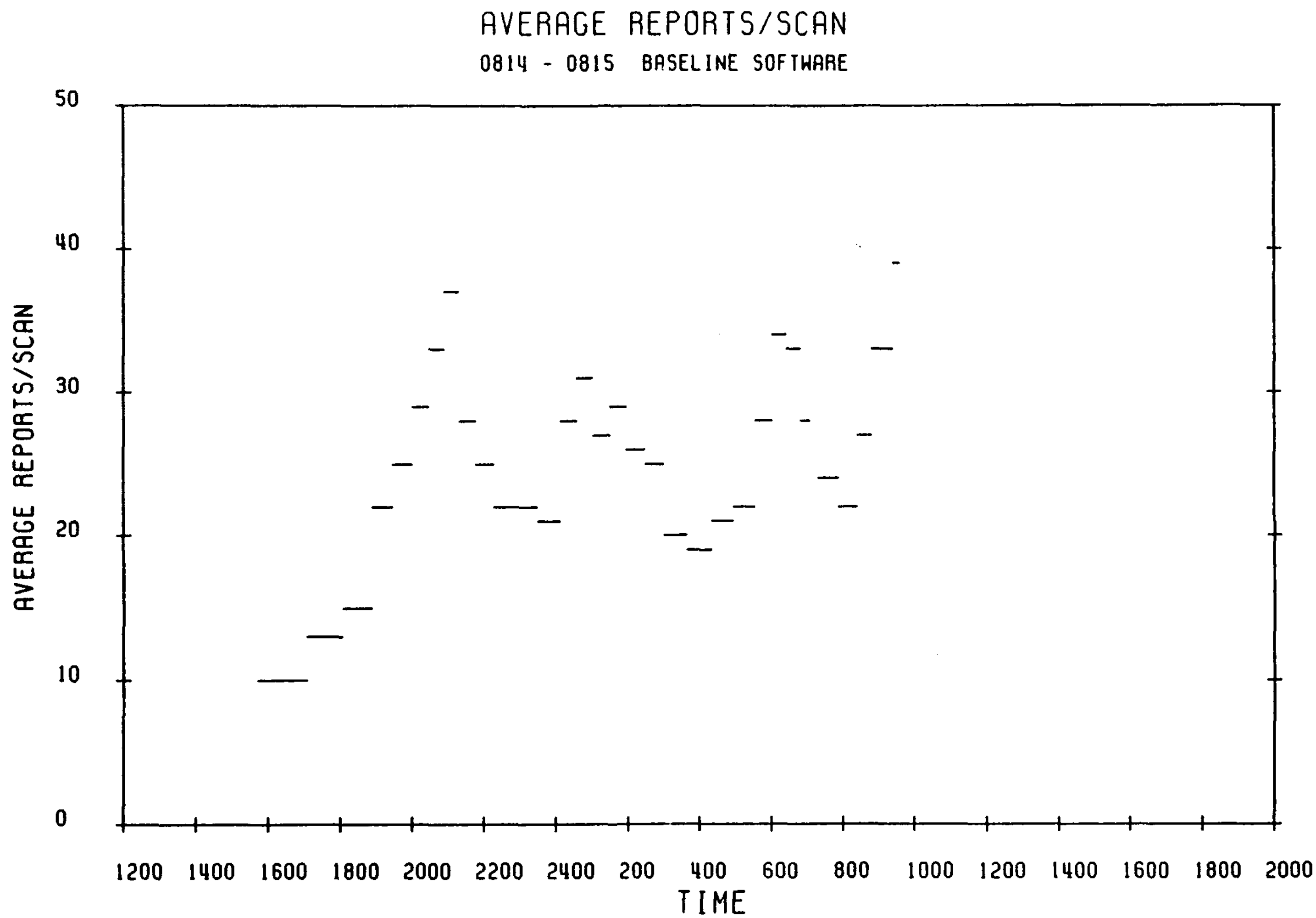


Figure 2-2. Average Reports Per Scan Baseline Software

numerous east-to-west tracks were observed. These were reports from migratory flocks whose track velocity exceeded the 60-knot threshold. The average number of reports per scan for a 16-hour period is shown in figure 2-3.

Figure 2-4 shows a PPI plot of target reports over a 6-hour period with the velocity threshold set at 90 knots. The PPI plot shows only aircraft and helicopter traffic. During this period only 8 tracks due to migrating birds were observed. The velocity threshold is an effective filter in removing low velocity migratory bird tracks.

Figure 2-5 shows the PPI plot of the reports for the next 3 hours with the velocity threshold lowered to 60 knots. The tracks from migratory birds reappeared. Figure 2-6 shows the track/report history from August 17, 2100 hours to August 18, 0125 hours. The velocity threshold was changed from 90 to 60 knots at midnight. The number of active tracks in the track file were essentially constant. The report activity increased from less than one report per scan to three reports per scan.

Figure 2-7 shows a PPI plot using the modified software configurations with a 40-knot threshold. The number of tracks that were reported are less than shown in figure 2-5; the reason for less tracks is due to a drop in the wind speed over the site. The display shows few false reports and the report/track history, figure 2-8, shows an average track file count of 18.

Figures 2-9 and 2-10 show PPI plots and track/report history using the baseline software configuration and a 40-knot threshold. The plot shows the false report pattern normally seen during the spring and summer months at the ROCC, in addition to migratory trails. The average active track file count is five times higher than with the software patches.

It was noted that when the system was reinitialized, the false report rate increased above the rate prior to reinitialization. The false report rate then decreased as the load monitor and control function adjusted the lower Doppler filter thresholds from their initialized values. This change in report rate was disconcerting to the operators at the ROCC, and it is recommended that the initialized threshold levels be set higher to allow less false reports during the settling period after reinitialization.

False target reports have been observed at times in the short range beam at the same bearing as a jammer strobe. A part of the false report study was to determine the ability of the software modifications to inhibit false target reports due to jamming. Jamming strobes were observed at a 278° bearing, as shown in figure 2-11. The UAR was operating with the modified software and patch T33, inhibiting zero Doppler filter search detections from initiating tracks. This appeared to be effective in preventing false target reports from being generated at the jammer azimuth. Figure 2-12 is a partial printout of the out-of-gate detection report generated from data extraction. It shows detections in the zero Doppler filter for beam numbers 58 and 59. Beams 58 and 59 are centered at bearings of 274° and 279°.

Jamming strobes, strobes not generated by the sun, were present for only two minutes during the one-week period that data was being collected. None were observed during operation with the baseline software; as a result, sufficient data is not available to determine

whether or not patch T33 corrects false target reports due to jamming. Further tests using controlled parameters should be scheduled to determine the performance of the modified software.

The modified software, tested at Bar-Main, reduced the false target reports to less than one report per scan. Migratory bird reports are effectively filtered by the velocity threshold.

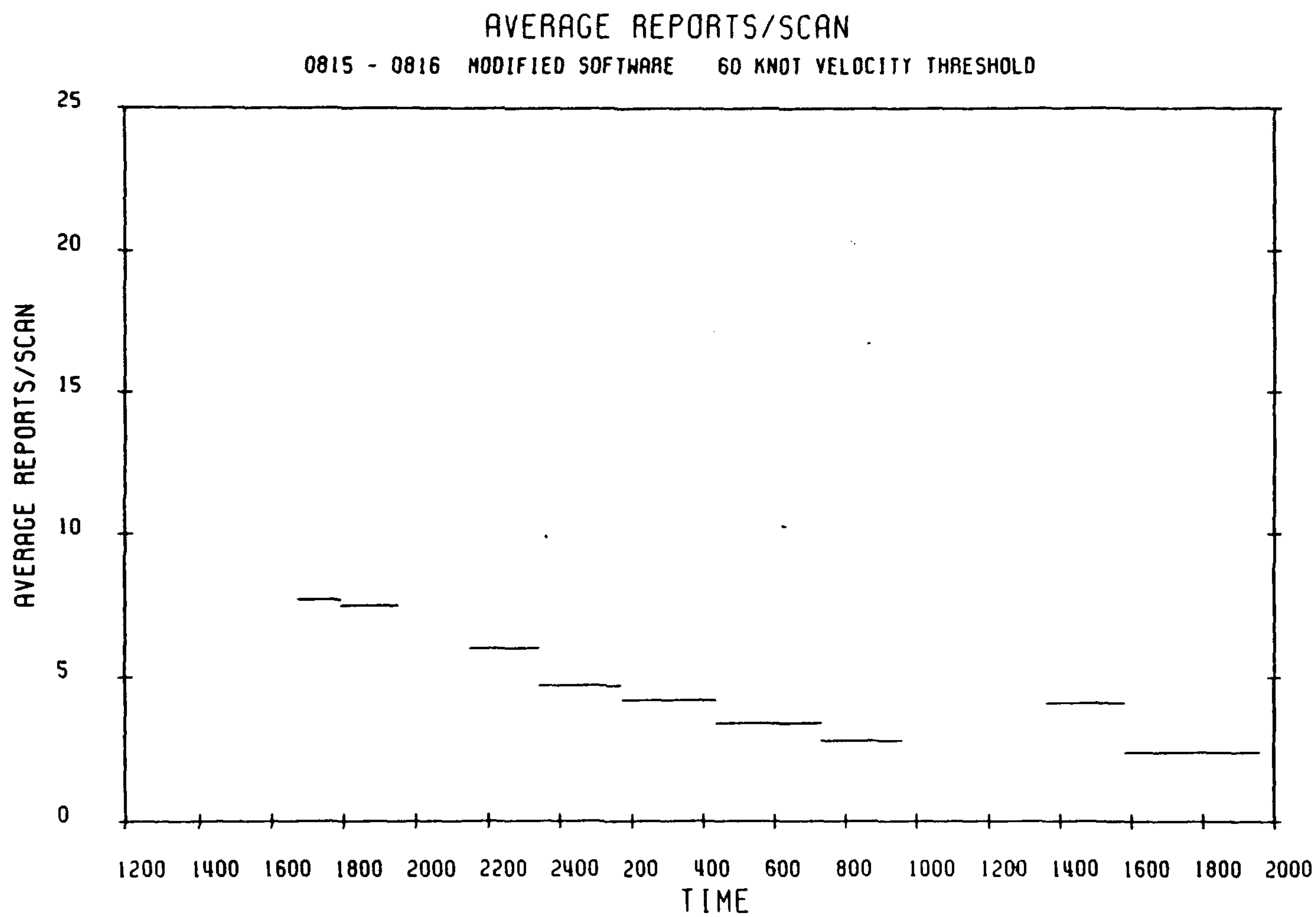


Figure 2-3. Average Reports Per Scan Modified Software

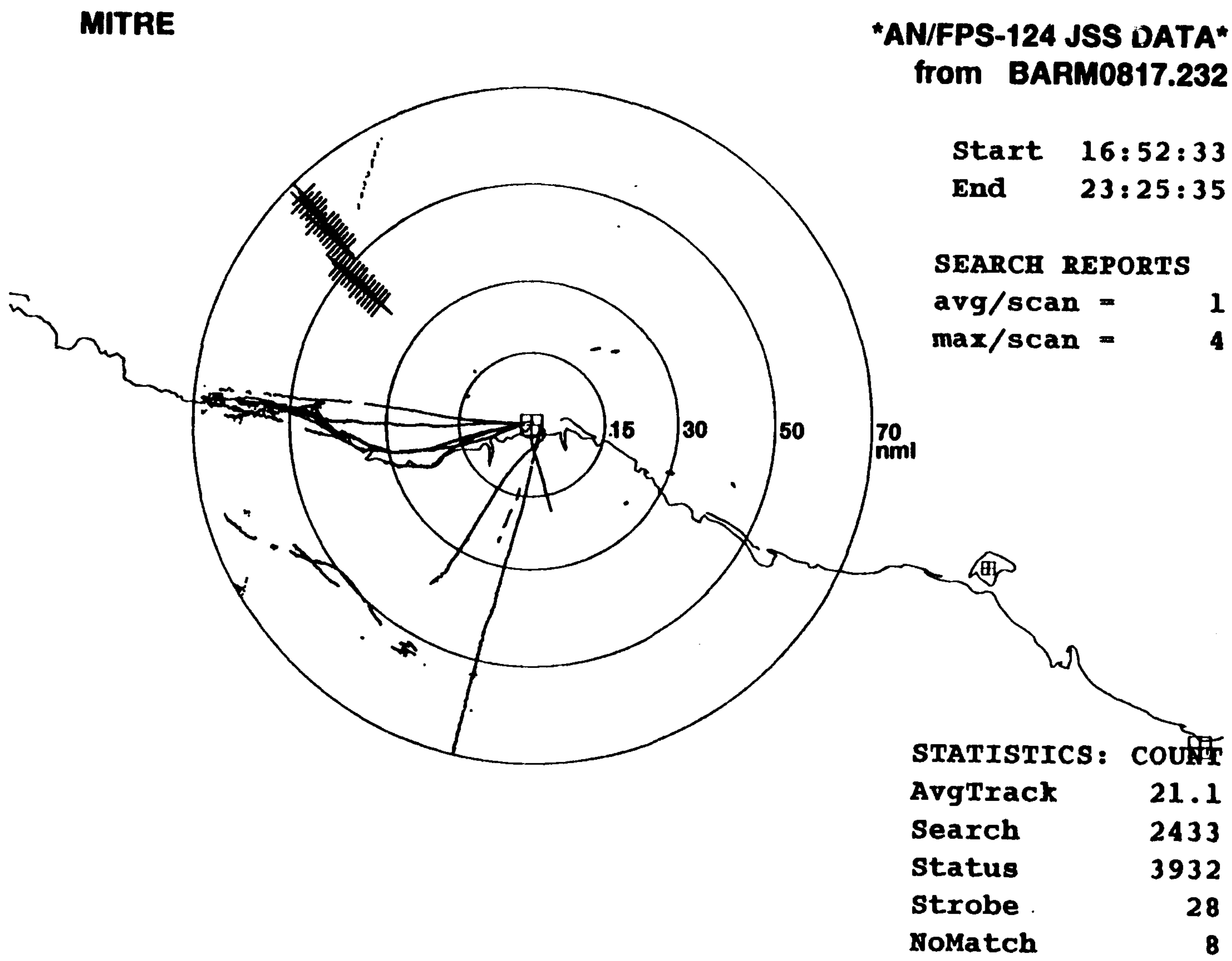


Figure 2-4. PPI Plot Modified Software 90-Knot Threshold

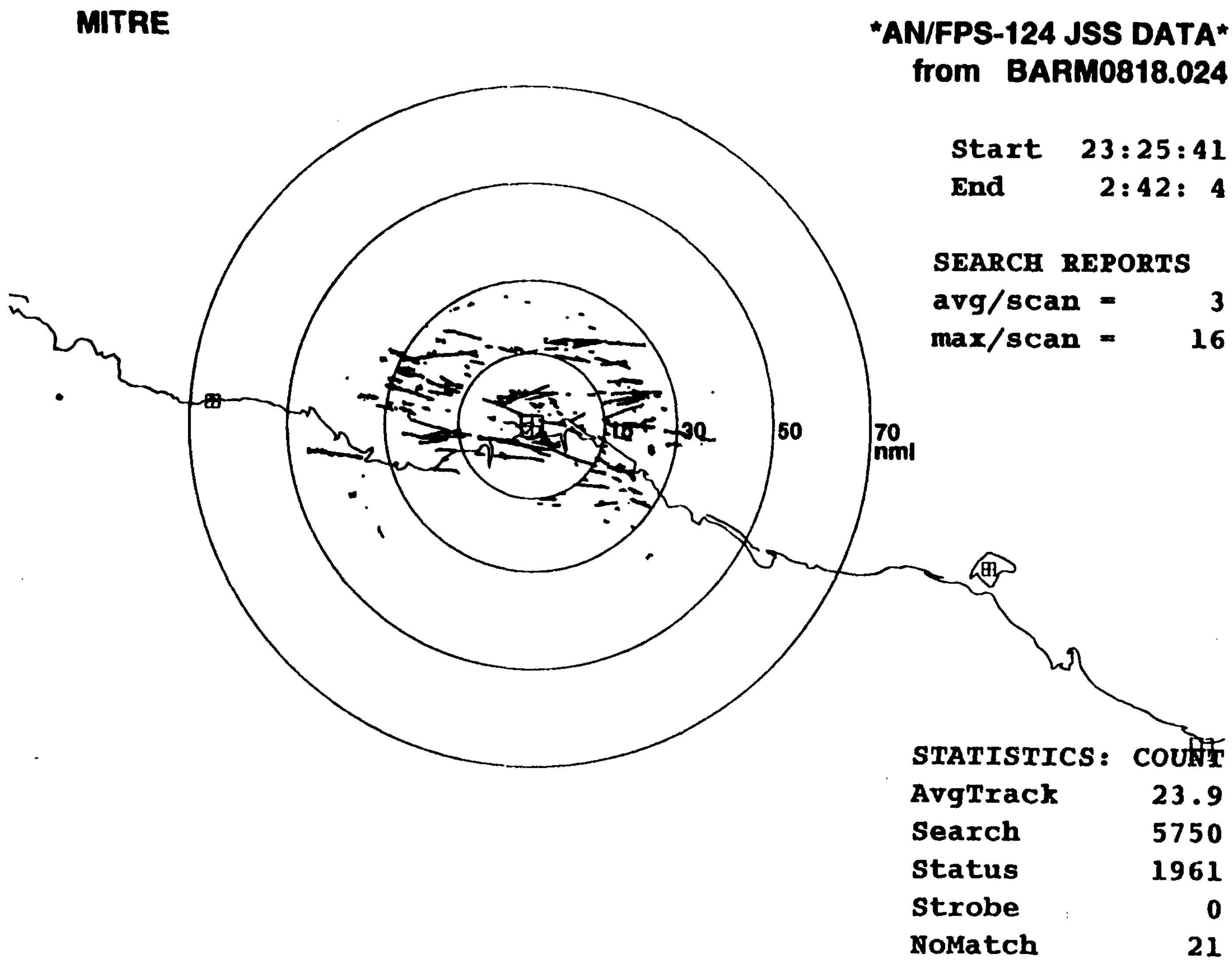


Figure 2-5. PPI Plot Modified Software 60-Knot Threshold

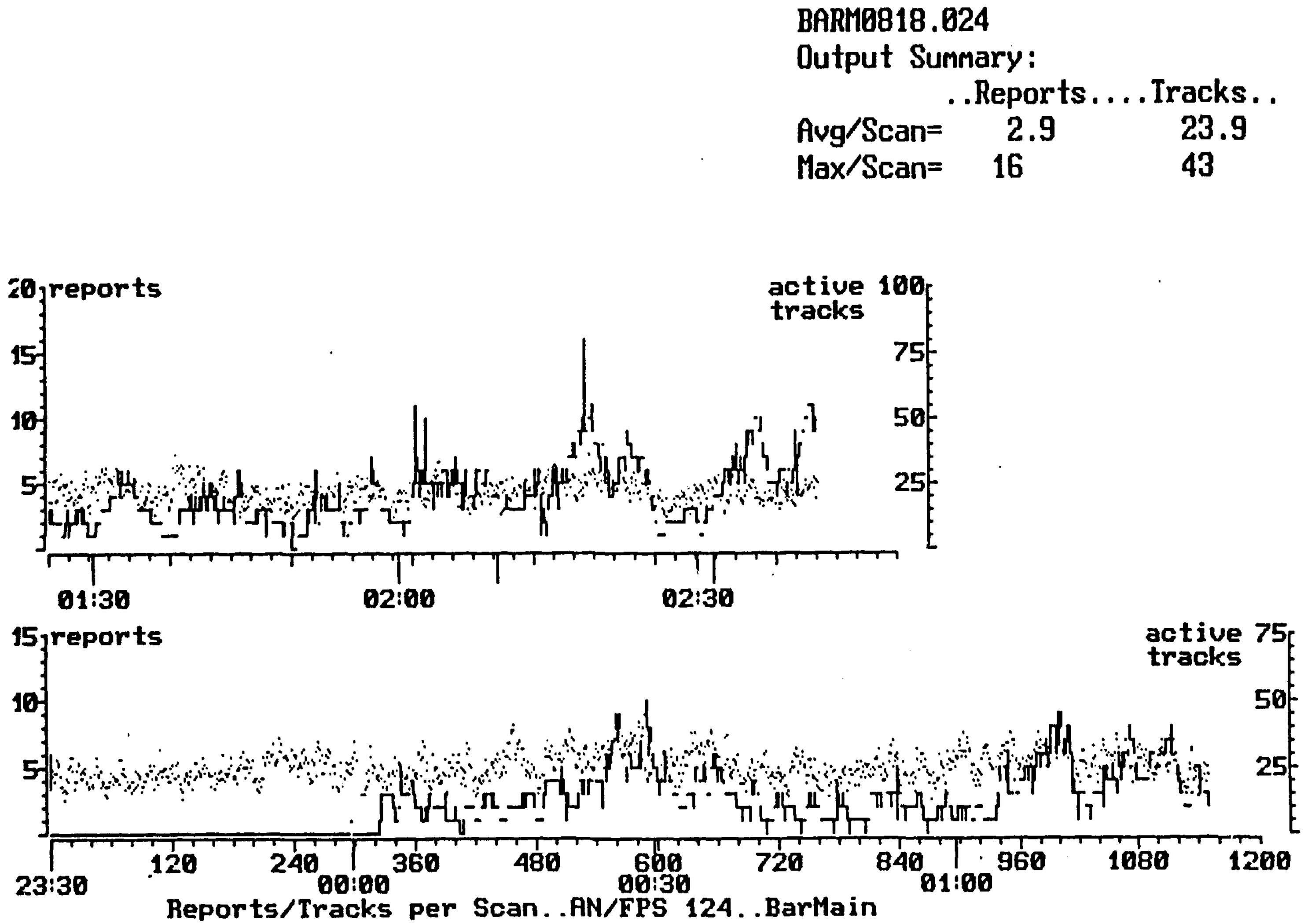


Figure 2-6. Track/Report History BARM0818.024

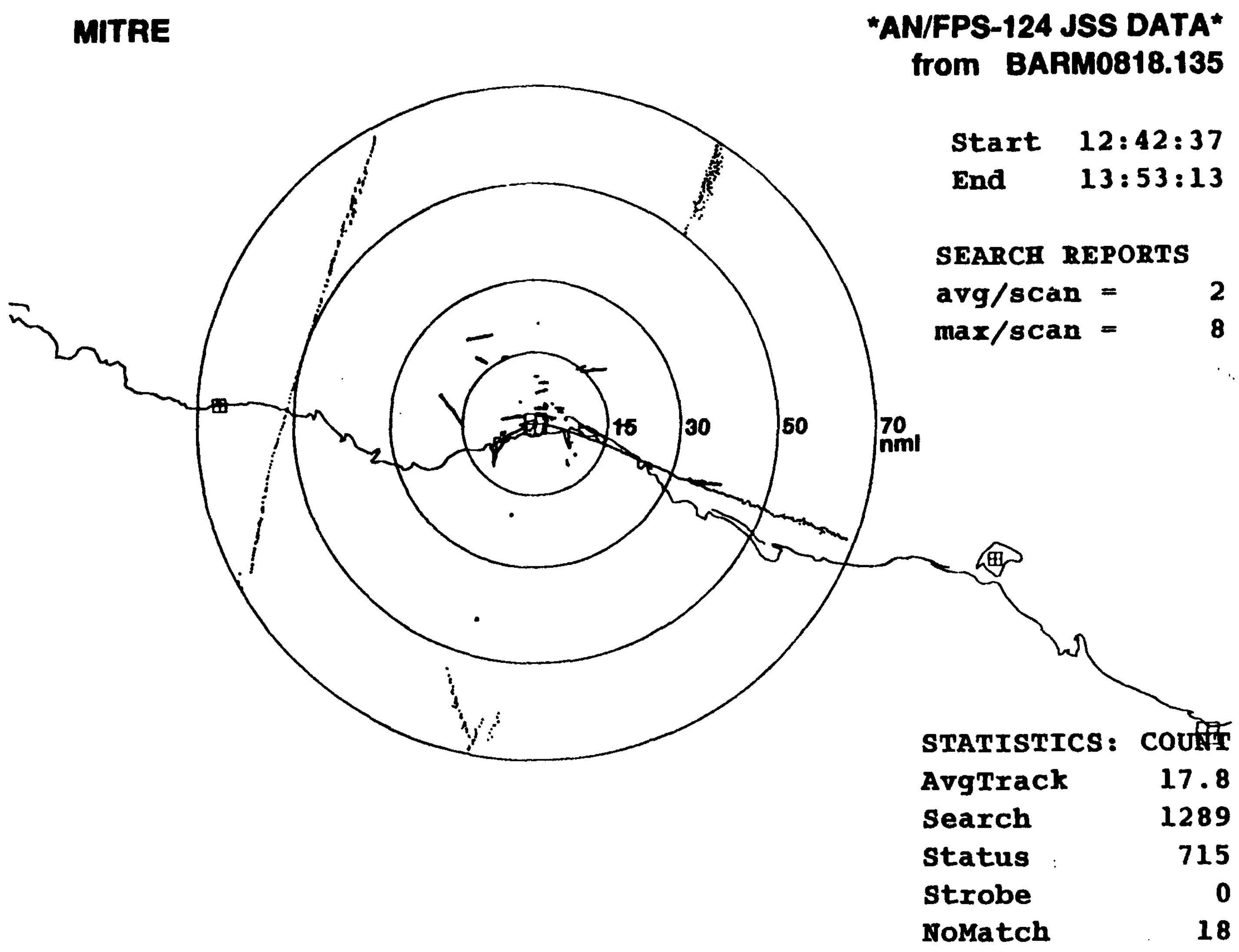


Figure 2-7. PPI Plot Modified Software 40-Knot Threshold

BARM0818.135

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	1.8	17.8
Max/Scan=	8	35

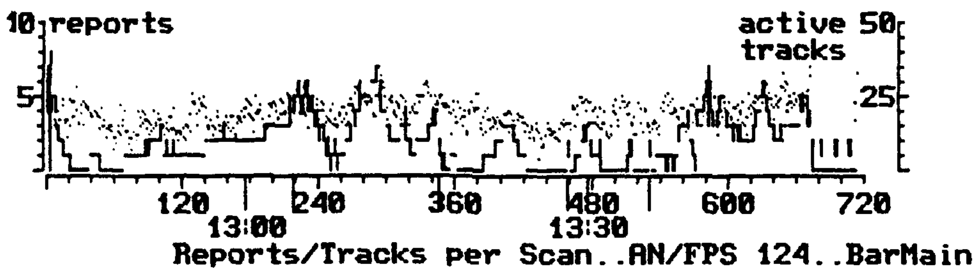


Figure 2-8. Track/Report History BARM0818.135

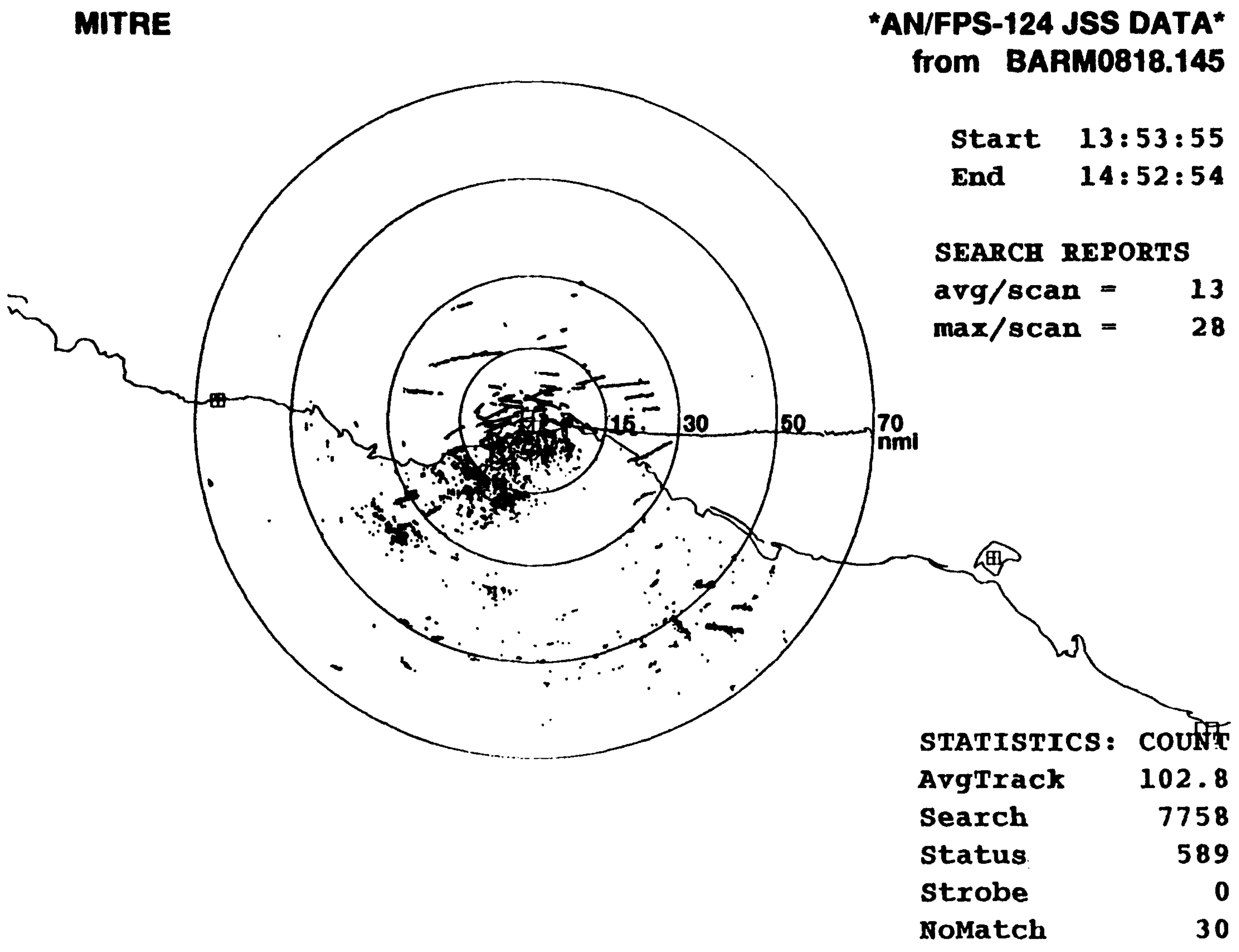


Figure 2-9. PPI Plot Baseline Software 40-Knot Threshold

BARM0818.145
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	13.1	102.8
Max/Scan=	28	148

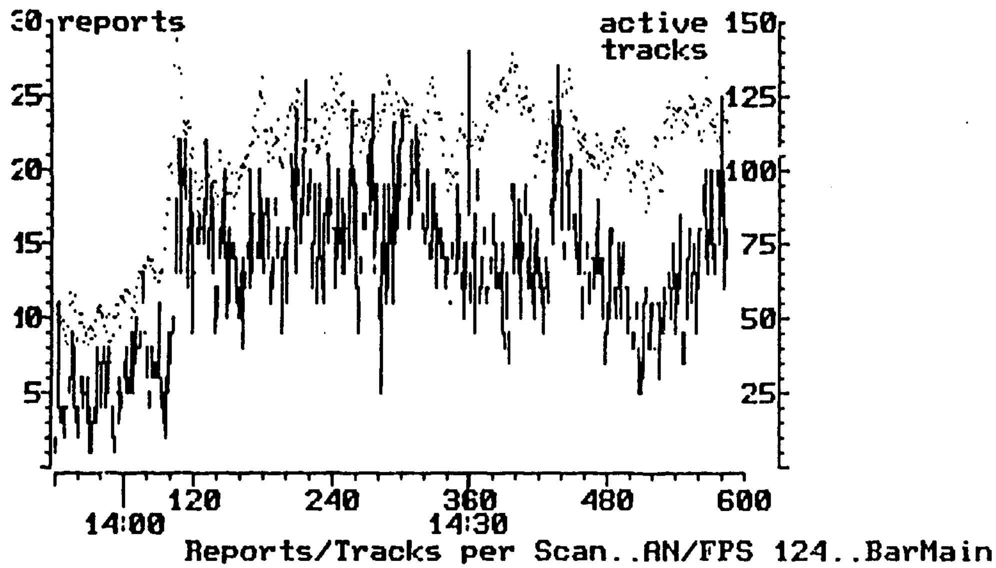


Figure 2-10. Track/Report History BARM0818.145

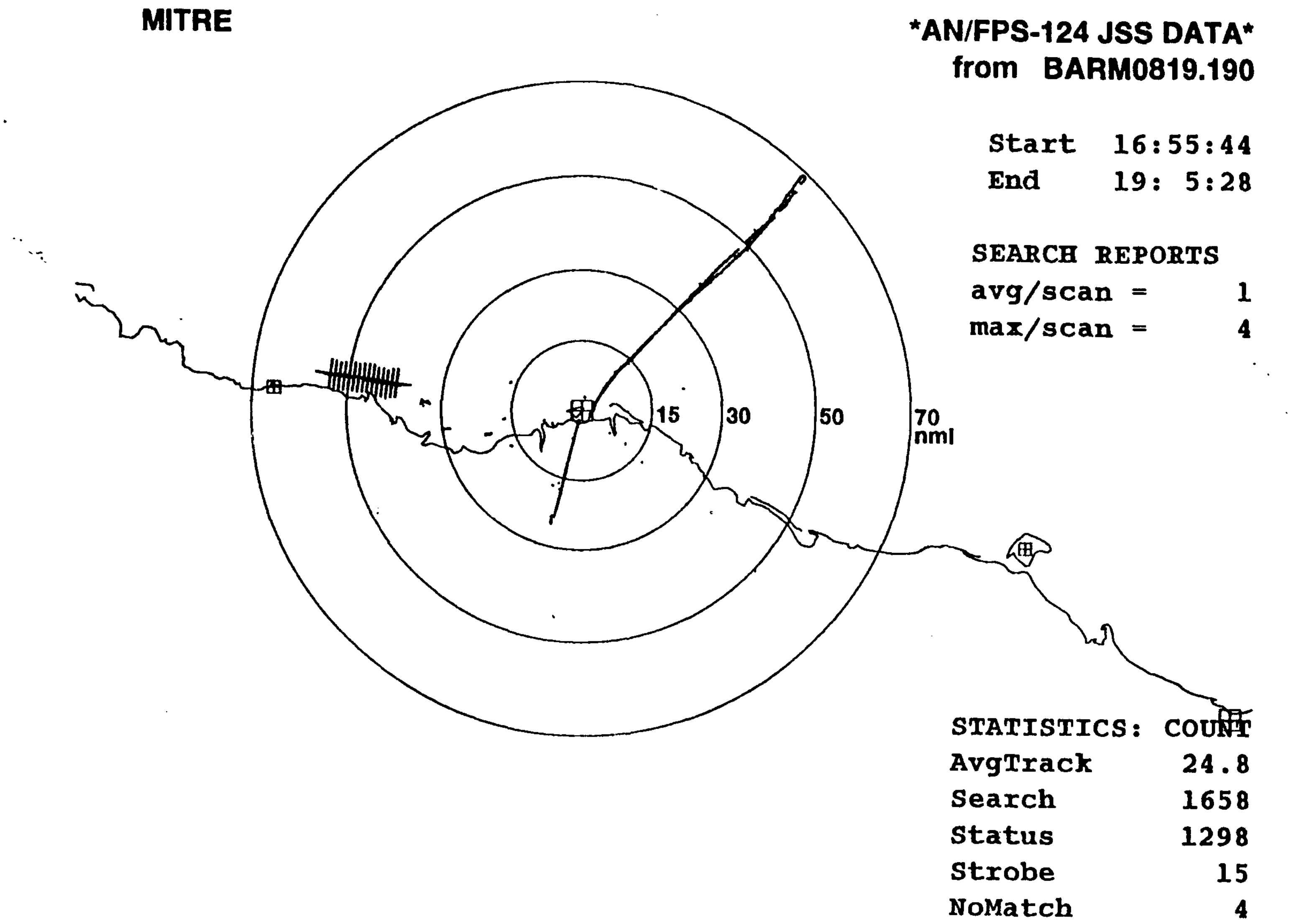


Figure 2-11. Strobe Reports BARM0819.190

21-AUG-90 PAGE:

SYSTEM TIME	RANGE BIN	ESTIMATED RANGE	DOPPLER FILTER	NORMALIZED SIGNAL AMPLITUDE	TEST TRGT#	SCHEDULING TIME	BEAM NUMBER
0:55:21.317	910	34096.02	1	10.50	0	31038	28
0:55:21.335	910	34093.84	1	9.17	0	31039	28
0:55:21.457	2606	97655.45	-1	6.33	0	31045	31
0:55:21.909	779	29185.22	1	16.50	0	31067	41
0:55:21.927	779	29183.25	1	7.17	0	31068	41
0:55:22.110	1110	41591.57	-2	10.67	0	31077	45
0:55:22.296	1775	66508.22	-2	9.67	0	31086	49
0:55:22.315	753	28222.40	-2	10.33	0	31087	49
0:55:22.315	820	30732.36	1	16.33	0	31087	49
0:55:22.315	1516	56804.48	-1	11.67	0	31087	49
0:55:22.315	1775	66510.09	-3	9.17	0	31087	49
0:55:22.315	1883	70563.53	-2	6.83	0	31087	49
0:55:22.396	1883	70559.78	-2	7.50	0	31091	50
0:55:22.478	926	34685.93	-2	9.67	0	31095	52
0:55:22.478	1840	68950.95	1	6.33	0	31095	52
0:55:22.684	2123	79557.78	-1	24.67	0	31105	56
0:55:22.847	1040	38961.61	0	30.50	0	31113	58
0:55:23.844	114	4264.93	-1	6.83	0	31162	17
0:55:23.967	681	25520.29	-1	6.33	0	31168	26
0:55:24. 69	149	5572.7.	-2	9.83	0	31173	36
0:55:24.232	455	17047.81	2	10.67	0	31181	44
0:55:24.294	98	3682.54	-3	11.00	0	31184	47
0:55:24.354	326	12210.28	0	6.67	0	31187	50
0:55:24.579	604	22634.29	0	5.83	0	31198	60
0:55:24.603	386	14474.33	0	7.67	0	31199	58
0:55:24.603	482	18056.22	0	9.50	0	31199	58
0:55:24.603	486	18204.87	0	5.83	0	31199	58
0:55:24.603	520	19505.21	0	6.50	0	31199	58
0:55:24.603	522	19563.51	0	8.17	0	31199	58
0:55:24.603	529	19814.38	0	6.33	0	31199	58
0:55:24.603	583	21835.41	0	5.00	0	31199	58
0:55:24.603	595	22297.03	0	6.00	0	31199	58
0:55:24.603	723	27110.09	0	6.50	0	31199	58
0:55:24.603	386	14466.30	0	6.50	0	31199	59
0:55:24.603	480	18001.57	0	9.67	0	31199	59
0:55:24.603	482	18059.34	0	11.83	0	31199	59
0:55:24.603	486	18226.41	0	7.50	0	31199	59
0:55:24.603	522	19568.17	0	7.17	0	31199	59
0:55:24.603	582	21822.14	0	5.83	0	31199	59
0:55:24.603	595	22293.28	0	6.50	0	31199	59

Figure 2-12. Out-of-Gate Detection Report

SECTION 3

SMALL TARGET PROBABILITY OF REPORTING

Probability of reporting tests were performed using 0.1 m^2 and 0.5 m^2 spheres towed 2,400 feet behind a helicopter. These tests consisted of radial inbound and outbound runs at a target altitude of 6,000 feet for both the baseline and modified software.

With the modified software installed, the 0.1 m^2 sphere reported consistently to 45 miles. The 0.5 m^2 sphere reported without dropouts to 45 miles and then intermittently to 63 miles. The baseline software tests showed consistent reports to 42 miles and intermittent reports to 48 miles for the 0.1 m^2 sphere and consistent reports to 58 miles for the larger sphere.

The sphere tests were run over water to avoid the sensitivity time control (STC) profiles south of the site. Multipath and weather could effect the radar performance. Figure 3-1 shows the UAR performance for target size versus range, with multipath effects included. The reporting range for a 0.1 m^2 target size is 2 to 12 miles in the short range beam and 15 to 42 miles in the long range beam. The multipath provides a reinforcement region between 43 and 48 miles that can extend the range for target reporting. The system specification for the NWS specifies a target report envelope of 5 to 65 miles for a 1.0 m^2 target. A scan-by-scan target report comparison between the baseline and modified software test runs for the 0.1 m^2 sphere is shown in figure 3-2. For both the baseline and modified software test runs, the target reporting ranges agreed with the maximum theoretical range for the short range and long range beams. However, the modified software test runs showed more dropouts than with the baseline software.

The initial loss of target reports up to a 6-mile range may be attributed to the flight path of the helicopter. The target trajectory initially was not radial and crossed over many beams between the 3 and 5 mile range. The target trajectory did not become radial until the 6 mile range. The helicopter track was lost at 4.5 miles due to target returns appearing at the same range in many beams, and the track gate being pulled off by the return from the towed sphere. The last report at 4.25 miles had a heading opposite to the direction of the helicopter. The target detections were not in the track gate and the helicopter track was lost. The drop track criteria used in the modified software during the test run was changed to three misses from the eight misses in the baseline system. Thus, it became easier to drop a credible track and also more difficult to establish a credible track for small targets. Once a credible track is dropped, it takes at least 1.5 miles to re-establish it.

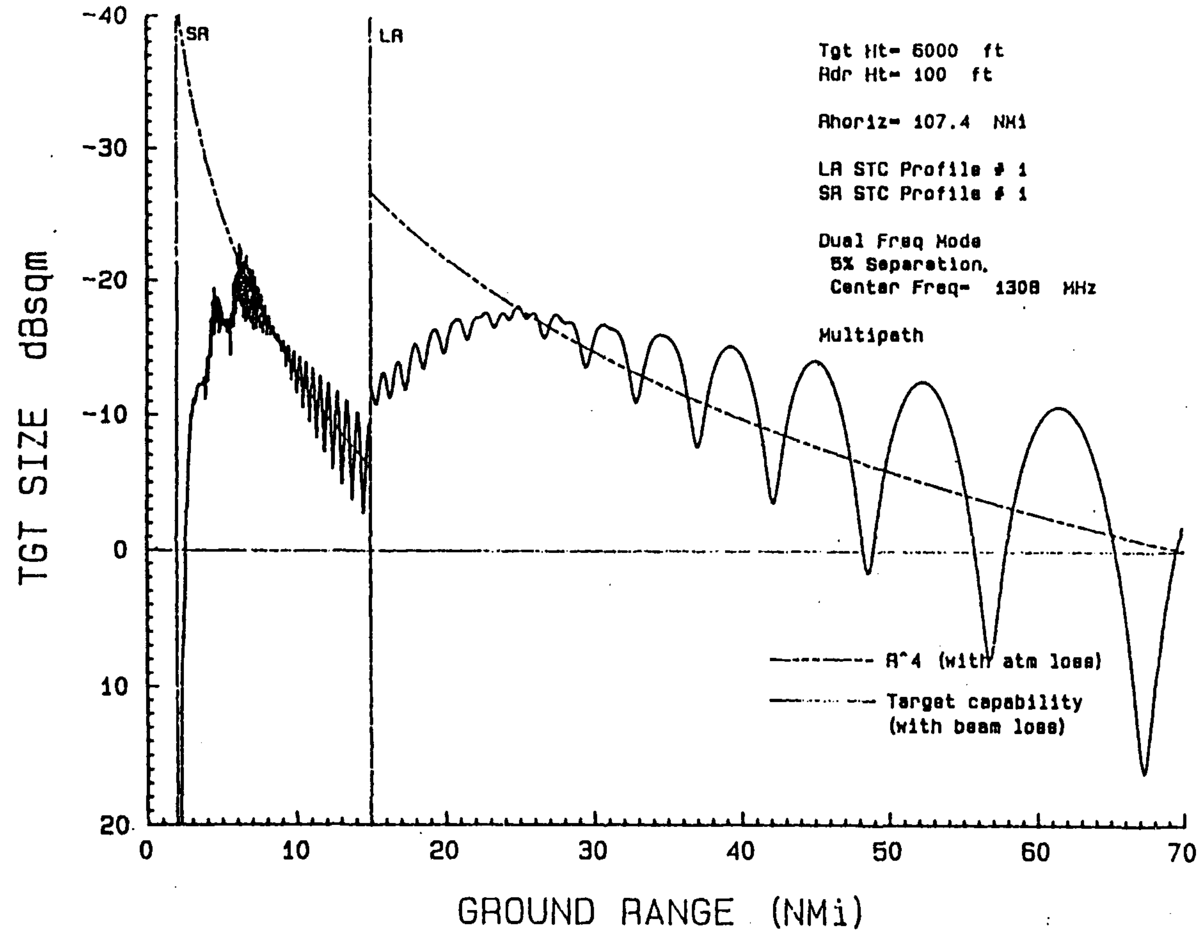


Figure 3-1. Radar Detection Performance with Multipath

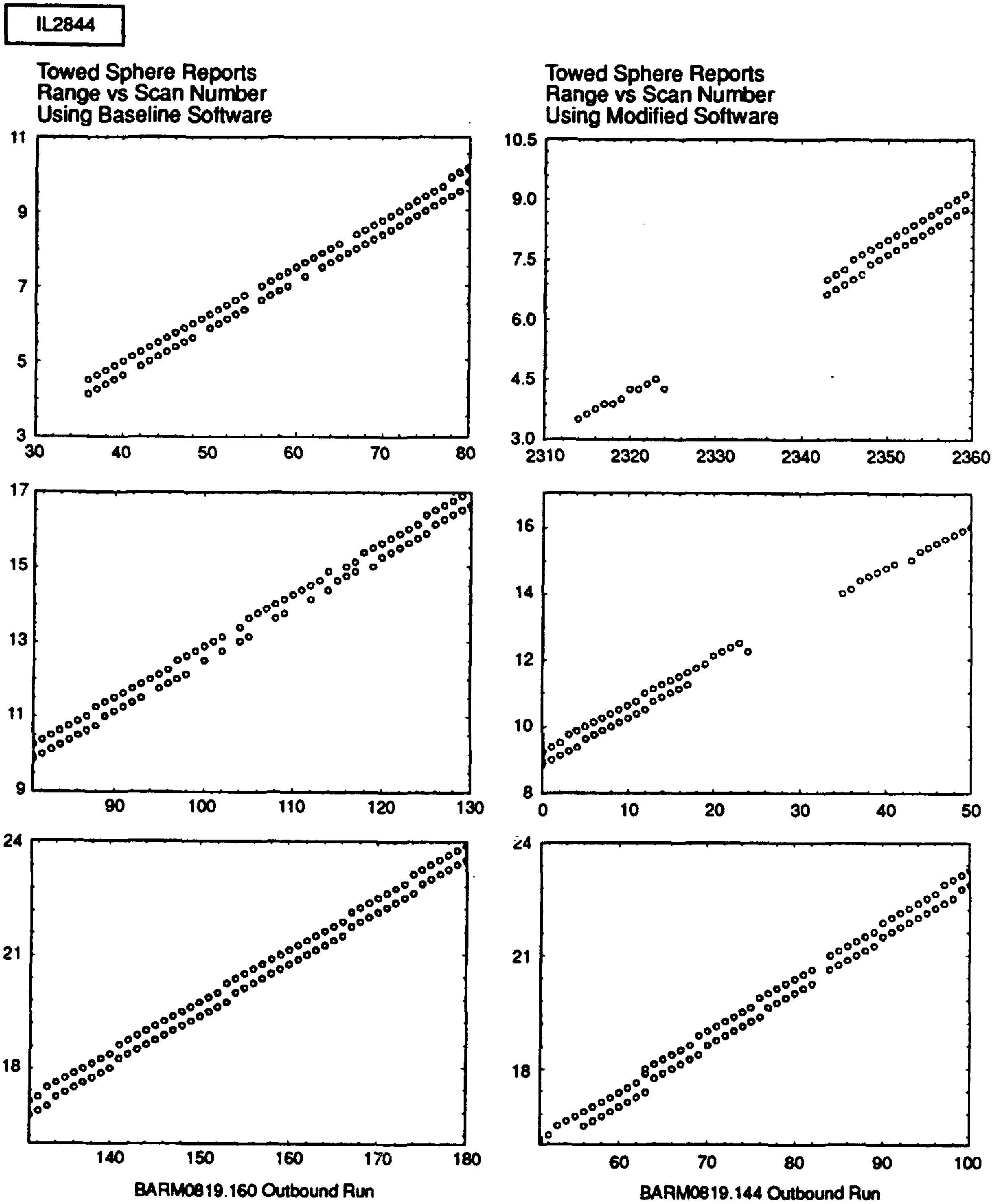


Figure 3-2. 0.1 m^2 Towed Sphere Targets Reports

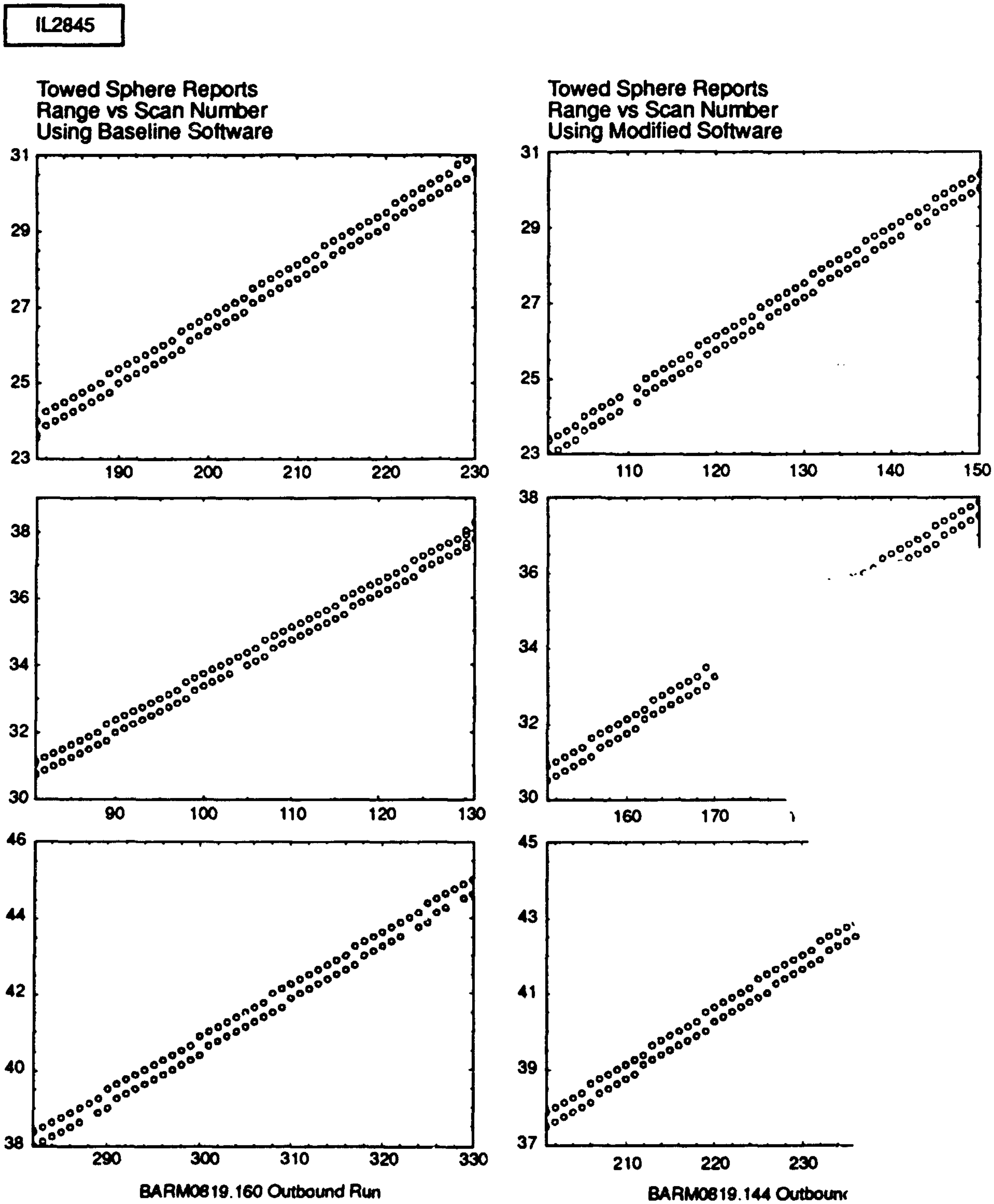


Figure 3-2. 0.1 m^2 Towed Sphere Targets Reports (Continued)

IL2846

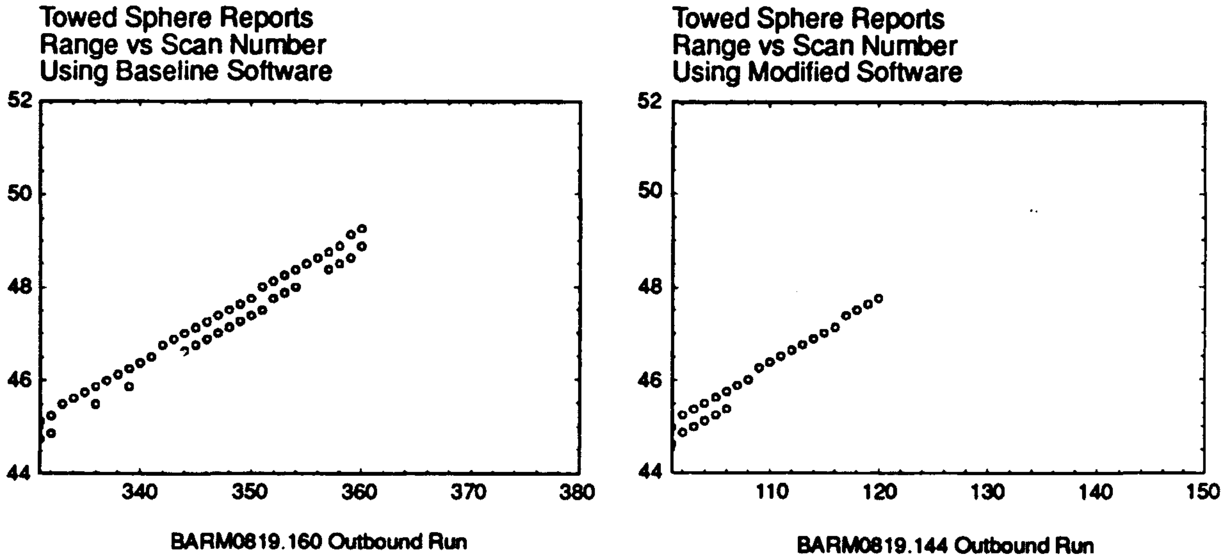


Figure 3-2. 0.1 m^2 Towed Sphere Targets Reports (Concluded)

The target reports for the sphere between 11 to 15 miles using the baseline software shows many dropouts. This is to be expected from the short range detection curve, where the radar performance was designed to report a 1.0 m^2 target at 15 miles. The 8-miss drop track criteria in the baseline software enabled the track to be maintained from 12 to 15 miles. The target reports, in the modified software test run, dropped out completely at 11 miles due to the 3-miss drop track logic and did not reappear until 16.5 nautical miles. The helicopter target broke track at the twelve mile range due to the track being captured by the sphere. However, since the helicopter had a sufficient target cross-section, the track and target reports were re-established 1.5 miles later. This agrees with the detection theory and track credibility algorithms. The detection thresholds are lower for track than for search. Since a credible track cannot be established from 12 to 15 miles in the short range beam for a 0.1 m^2 target, the target would not be reported until the16.5 mile range. The test results showed target reports on the sphere from 16.5 miles to beyond 45 miles.

Using the modified software, without patch 40A, there were four cases where the helicopter track was captured by the sphere. None were noted by the baseline software. Two were noted in the short range beam with the 0.1 m^2 sphere, and two were observed with the 0.5 m^2 sphere in the long range beam. Patch 40A, changing the credible drop track logic from 3 to 5, was added after the test runs. The extraction data collected during the probability of reporting tests should be analyzed to determine the cause of these break tracks.

SECTION 4

HIGH G MANEUVERS

High g maneuver flight tests were run with a Lear Jet 25 aircraft from Elmensdorf AFB on August 21, with the reduction of false reports software installed. The drop track criteria for a credible track was five misses. Maneuvers of 1 g, 2 g, and 3 g were flown at 20, 30, 40 and 50 mile ranges. Figures 4-1 and 4-2 show the aircraft flight paths. Figure 4-3 shows expanded target report locations for each of the 90° and 180° turns. Table 4-1 summarizes the aircraft maneuvers and the resultant radar performance.

An independent tracking radar was not available to monitor the aircraft flight path. The measured acceleration levels of the 16 maneuvers were derived by estimating the turn radius of the maneuver trajectory and aircraft velocity. Actual aircraft position and speed were not available, and the results were estimated from the JSS data. The JSS data provides the position of the target at the time of the report and a calculated target velocity from the Kalman filter in the UAR data processor. The filter position data is subject to lag and overshoot errors during maneuvers, and the velocity outputs are derived from the predicted positions. The measured and requested acceleration values for the 1g maneuvers are in agreement. The 2 g and 3 g maneuvers show a larger discrepancy between the requested and measured acceleration. This can be attributed to the lag in the tracking filter and the actual velocity of the aircraft in the turn.

Turn 14, as shown in figure 4-3, was a difficult maneuver for the tracking filter in the data processor for the radar to track. The teardrop maneuver can be considered as a 270° turn in a clockwise direction immediately followed by a 90° counter-clockwise turn. The total acceleration sensed by the filter is in excess of the 3 g specification limit. Although three target reports are missing, the radar reports are sufficient to enable the ROCC to maintain a track on the target.

The radar extraction data collected during these maneuvers were being analyzed to determine the cause of the missing reports.

The probability of reporting, P_R, was calculated by counting the number of reports transmitted in the turn as reports. For every frame that a report was missing, the number of reports was increased by one. The P_R is the ratio of these two numbers. Due to the uncertainty of the actual maneuver values, the P_R was averaged for each requested acceleration level. The average for each group is:

- 1 g maneuvers 99 percent
- 2 g maneuvers 100 percent
- 3 g maneuvers 93.7 percent

Dropouts were also noted during maneuvers within 7 miles from the radar. This is attributable to beam association problems; the target appears simultaneously in many beams at these short ranges. This area represents 0.6 percent of the radar performance envelope.

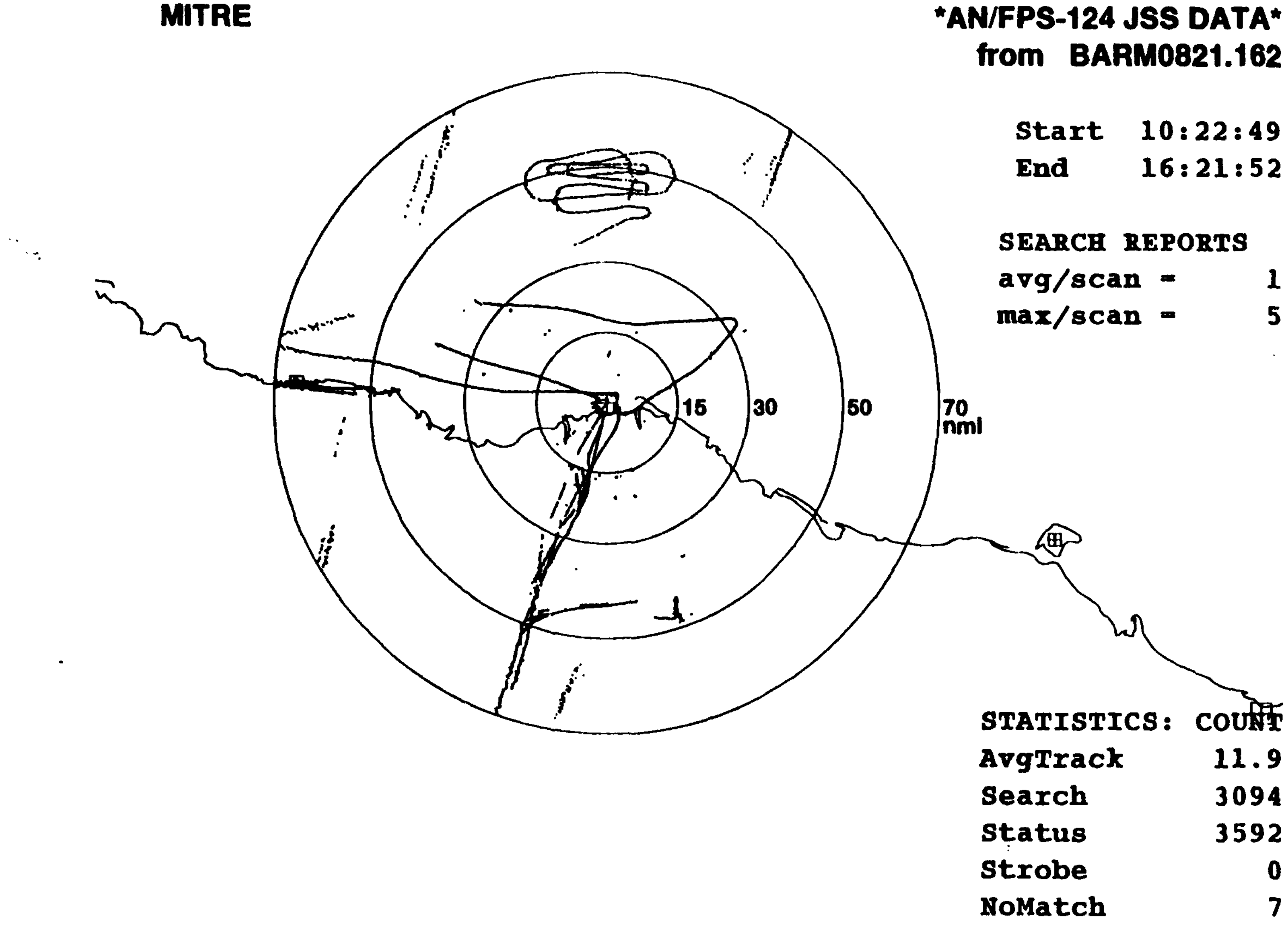


Figure 4-1. PPI Plot High G Maneuvers BARM0821.162

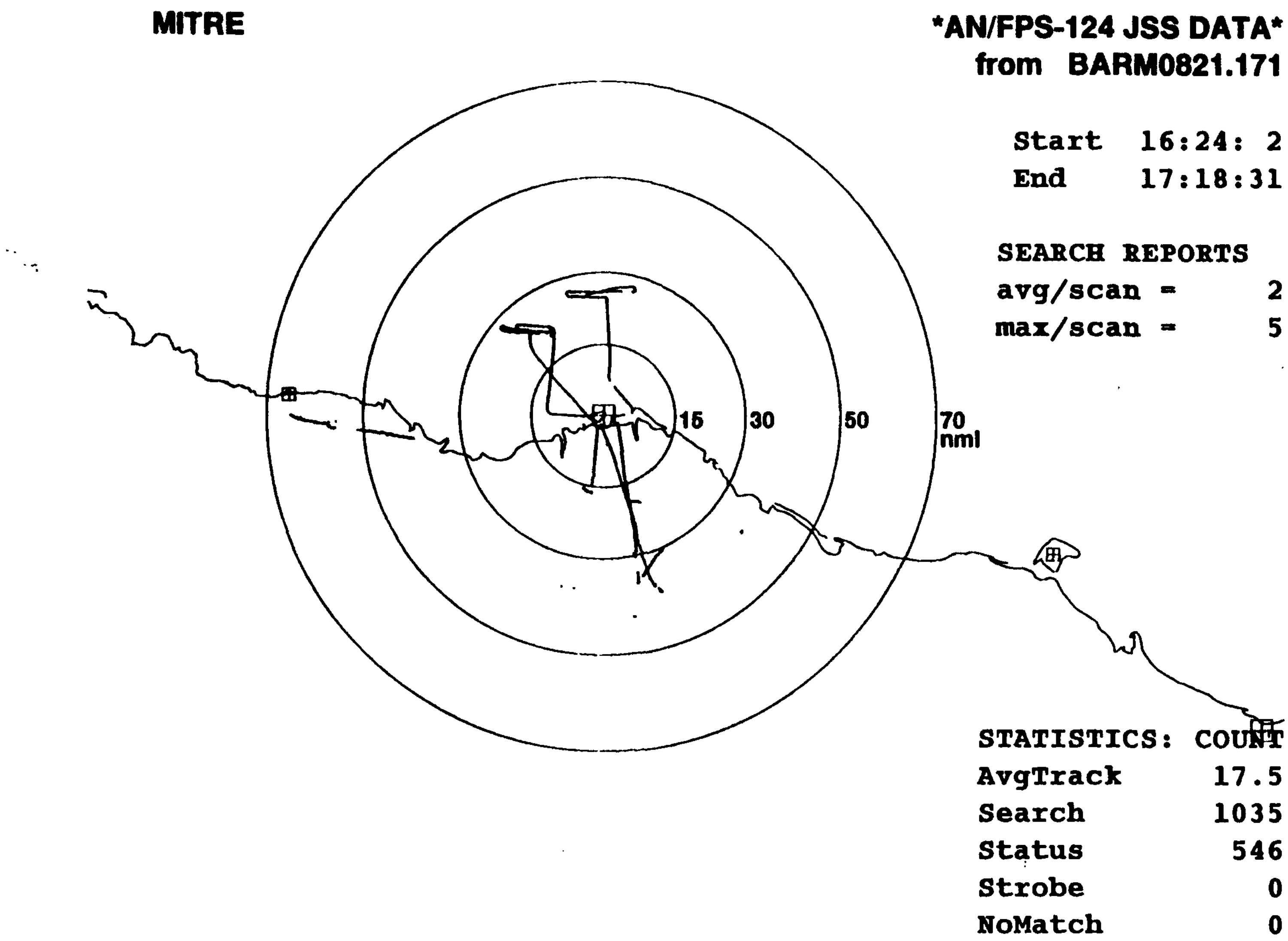


Figure 4-2. PPI Plot High G Maneuvers BARM0821.171

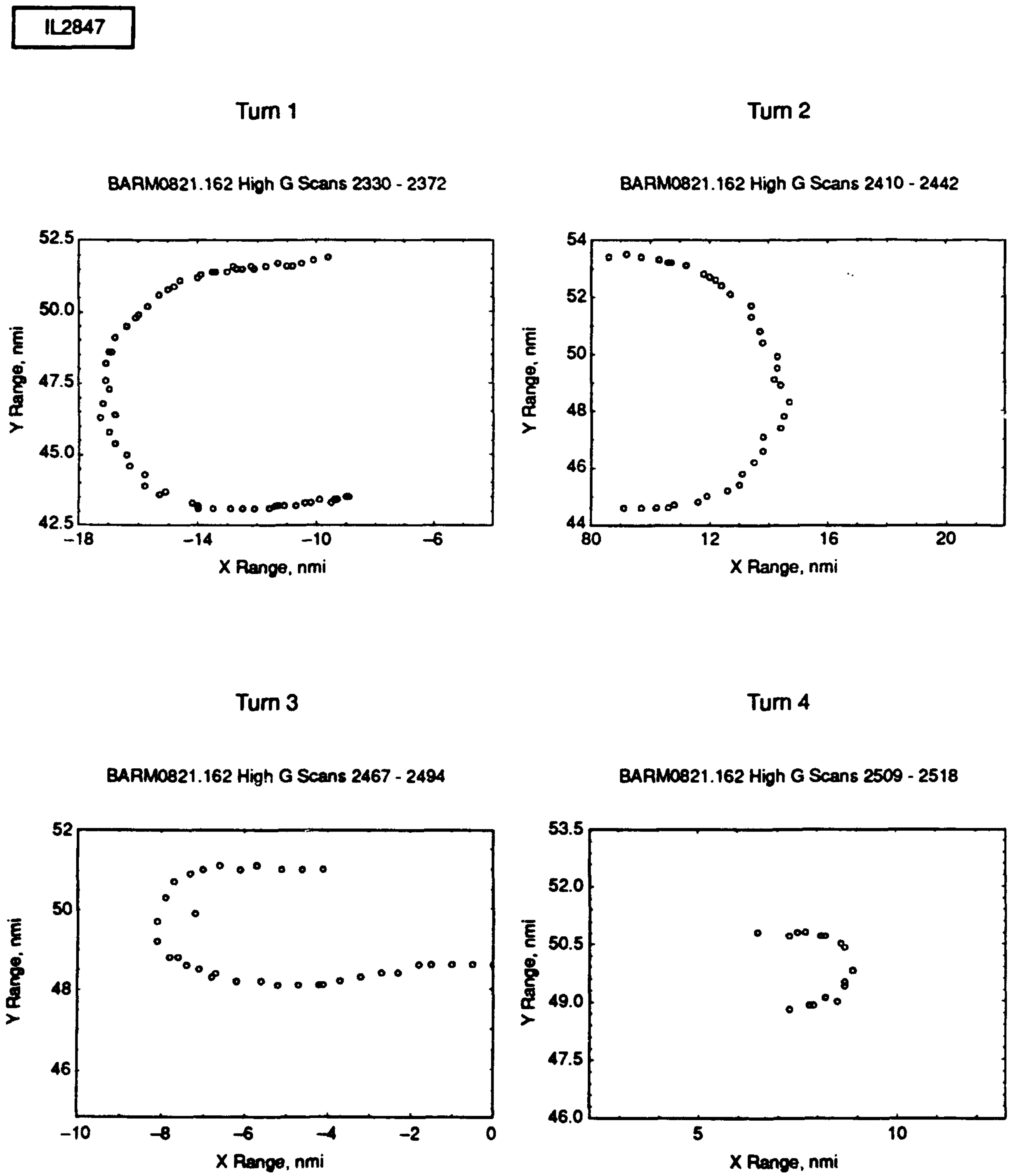


Figure 4-3. High G Maneuver Target Reports

IL2848

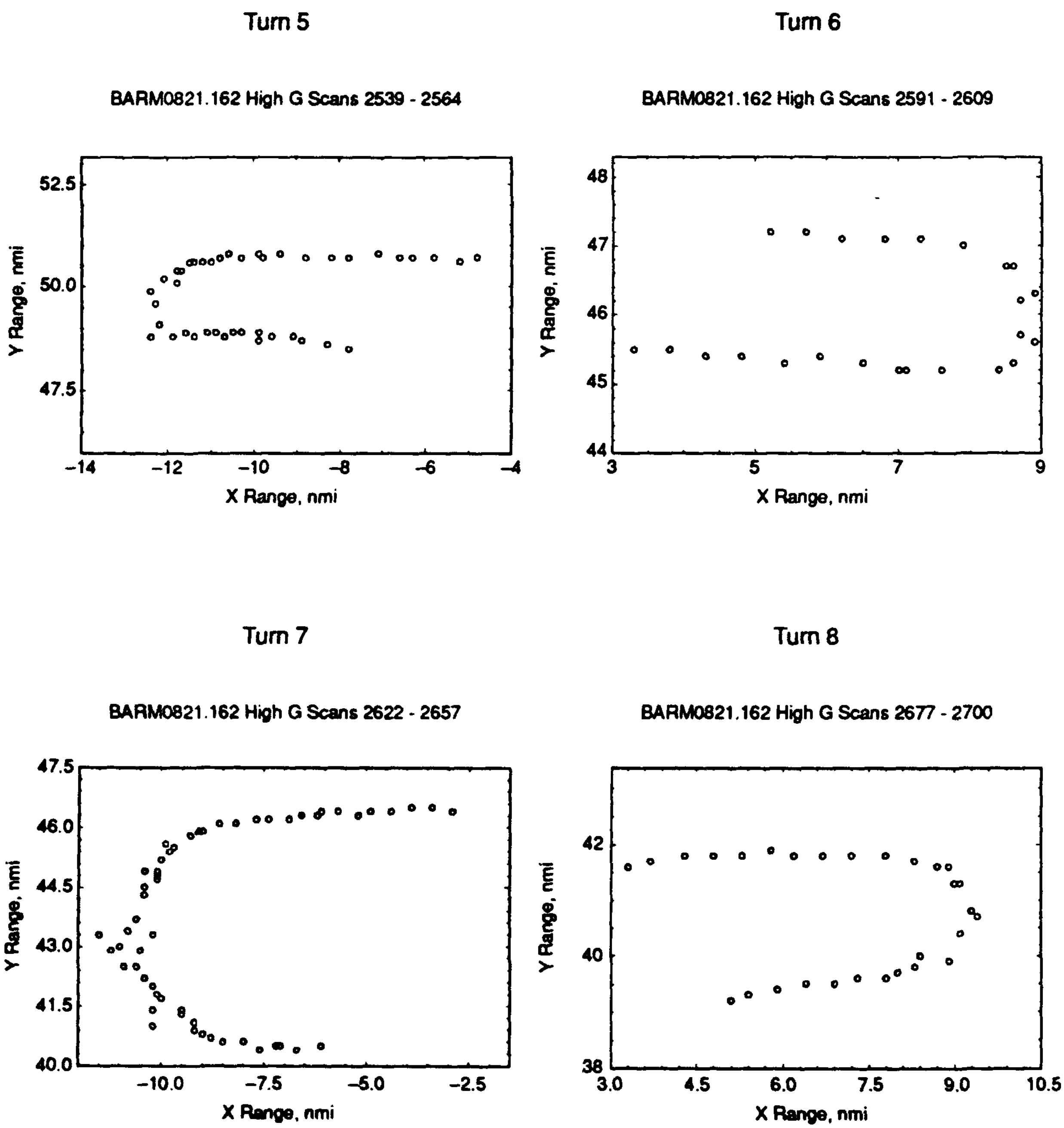


Figure 4-3. High G Maneuver Target Reports (Continued)

IL2849

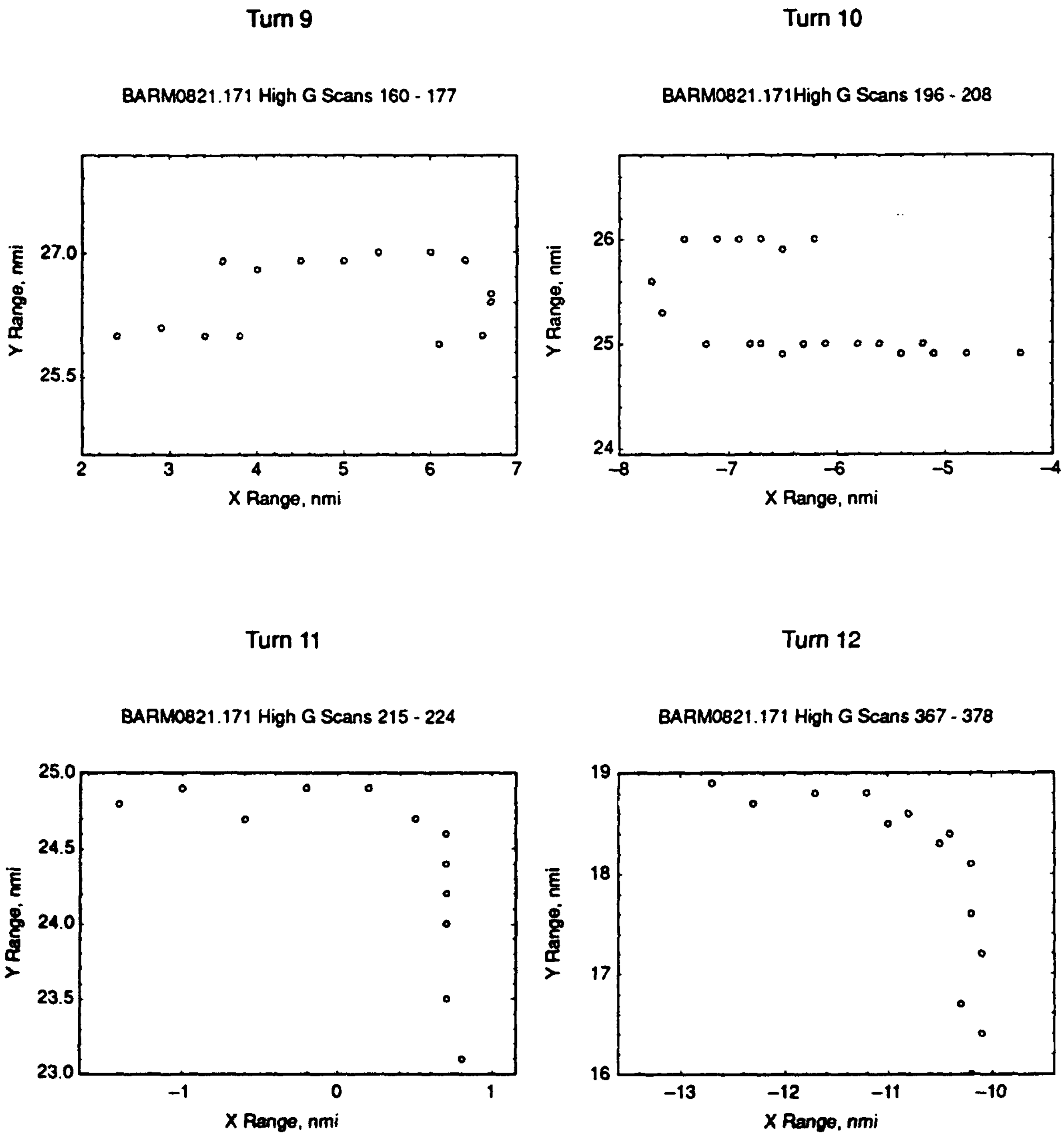


Figure 4-3. High G Maneuver Target Reports (Continued)

IL2850

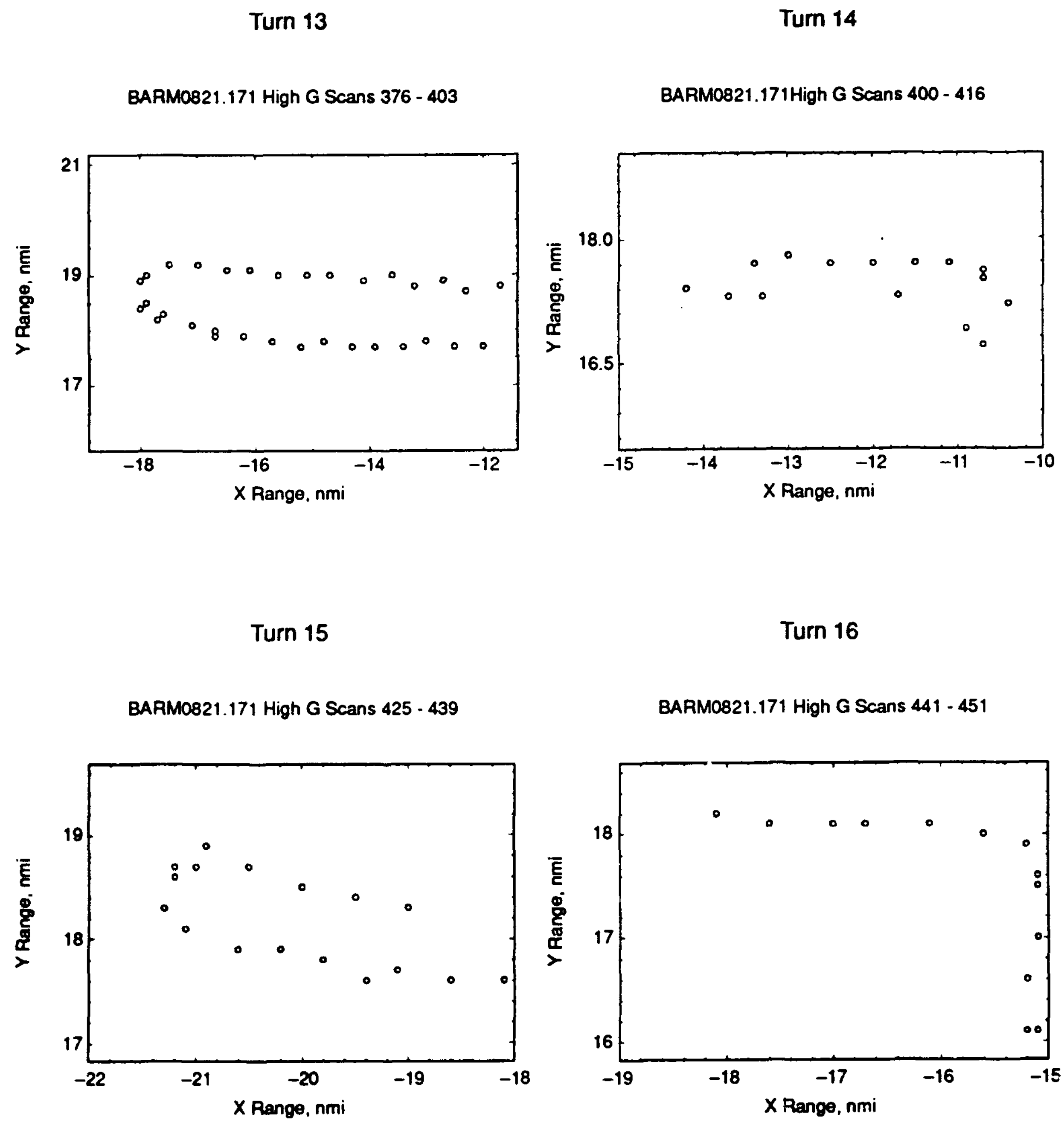


Figure 4-3. High G Maneuver Target Reports (Concluded)

Table 4-1. Summary High G Maneuvers

Turn	Type	Requested Maneuver	Measured g (v^2/r)	Aircraft g $\sqrt{1+\frac{v^4}{r^2}}$	P_R Percentage
1	180° CCW	1g	.33	1.05	98
2	180° CW	1g	.3	1.04	100
3	180° CCW	2g	.99	1.4	100
4	180° CW	2g	1.45	1.8	100
5	180° CCW	3g	1.59	1.9	100
6	180° CW	3g	1.52	1.8	100
7	180° CCW	1g	.44	1.1	99
8	180° CW	2g	1.23	1.6	100
9	180° CW	3g	2.1	2.3	60
10	180° CCW	3g	2.1	2.3	100
11	90° CCW	3g	2.8	3.0	100
12	90° CCW	3g	2.1	2.3	100
13	180° CCW	3g	2.45	2.7	100
14	CW teardrop	3g	2.45	2.7	77
15	180° CCW	3g	2.5	2.7	100
16	90° CW	3g	2.8	2.9	100

SECTION 5

CONCLUSION AND RECOMMENDATION

The software patches T32, T33, and T40A reduced the false target report rate from an average of 30 per scan to less than 1 per scan. The modifications to the mission software effectively eliminated the false target reports from slow moving targets initiated by detections in the zero Doppler filter. The migratory bird track reports, however, are true reports since they meet the criteria for reporting and their ground speed was above the velocity threshold. These tracks were able to be suppressed by selecting a higher velocity threshold.

The towed target tests using a 0.1 m^2 sphere showed solid outbound detections in the long range beam to 45 nautical miles. Beyond 45 miles, dropouts due to multipath were noted. The target reports for the 0.1 m^2 sphere exceeded its theoretical reporting range of 40 miles range. However, the baseline software showed reports further in range.

The High g maneuver patches, T32A, T32B, T32C, T39, T39A and part of T40, although not part of the reduction of false reports study, showed improved maneuver reporting performance when tested with a Lear 25 jet aircraft.

The JSS data collected during the field testing at Bar-Main showed a significant reduction in the number of false reports due to large bird populations in the North Slope Wildlife Sanctuary and improved reporting performance on maneuvering targets. Before the software modifications tested at Bar-Main are incorporated into the mission software, the extraction data taken by the Unisys Corporation should be thoroughly analyzed to determine if the modifications are sufficient to correct the problems noted prior to the study, and if the modified software is not creating any new problems.

APPENDIX A

BAR-MAIN FALSE REPORT STUDY PATCHES

The following is a listing of the patches that were used to modify the mission software during the field tests at Bar-Main, Alaska. The patches were down-loaded to the data processor via a personal computer.

```
****************************************************************************
****
*
*  F02PAF.CMD    BAR M FALSE REPORT REDUCTION STUDY PATCHES
08/20/90
*           F02PBARM.CMD PATCHES + PATCHES T40 & 40A
*
****************************************************************************
****
MEM
PCR=0
PGS=F02B8290
*
****************************************************************************
* THE FOLLOWING PATCHES HAVE NOT BEEN APPROVED
*          PATCH T30  - PART OF F02PX.CMD PMFI CHANGES TESTED AT
*                 NORTHBAY (ECP - 57)        05/22/90
*          PATCH T30A - PART OF F02PX.CMD          05/22/90
*          PATCH T30B - PART OF F02PX.CMD          03/15/90
*          PATCH T30C - CORRECT PMFI RECEIVER NOISE  07/02/90
*                 SOURCE TEST
*          PATCH T27  - CORRECT TRACK AGE OVERFLOW   07/02/90
*          PATCH T29  - CORRECT PMFI AGC INIT.      02/16/89
*          PATCH T32  - REDUCE FALSE REPORTS         07/13/90
*          PATCH T32A - RESET HIT/MISS COUNT TO -1   08/07/90
*                 IF MANUEVER DETECTED
*          PATCH T32B - NO MANUEVER DED.TRACK FOR    08/08/90
*                 PRIORITY 4 & 5
*          PATCH T32C - RANGE * BRG INNOV >= 800 MSQ 08/15/90
*          PATCH T33  - INHIBIT ZERO D.F. SEARCH     07/12/90
*                 DETECTIONS
*          PATCH T36  - IMPROVE MANUEVER PERFORMANCE 06/25/90
*          PATCH T39  - SET MANEUVER IF RANGE INNOV. 07/03/90
*                 >= 100 METERS
*          PATCH T39A - ALLOW MANEUVER DED. TRACK    07/09/90
*                 EVERY FRAME
*          PATCH T40  - REDUCE PROBABILTY OF GHOSTS  08/17/90
*          PATCH T40A - CHANGE CRED. TRACK DROP      08/20/90
*                 THRESH0LD -3 TO -5
****************************************************************************
****************************************************************************
*          TEST PATCH T30            REVISED  05/22/90
*
*      PMFI PROCESSING IMPROVEMENTS
*
****************************************************************************
****************************************************************************
* MTI PROCESSING MODIFICATIONS
```

```
**************************************************************************
*
* SET MTI TO 90, MTI PASS/FAIL TO PASS IF NONE OF AMPLITUDES EXCEED
* THRESHOLD. TEST RANGE START SET TO 491 IF ALL AMPLITUDES ARE
EQUAL
* SMOOTH MTI FOR DISPLAY [MTI = MTI(n-1) + P[MTI(measured)-MTI(n-1)]]
* P = 0.07 IF MTI(measured) >=  MTI(n-1) ELSE = 0.3
*
* R08M2D(14CDB)
*
* REPLACE 0044- 0057(14D1F-14D32) WITH THE FOLLOWING:
L 14D1F,7605,8550,01EB,9050,2397,0703,F600,6D98
L 14D27,7912,8030,28AC,5053,0075,5370,2199,8540
L 14D2F,005A,9040,219B,7444
*
* 14D65,6 FROM 70F0,2C20
L 14D65,70F0,3900
* PATCH AREA(1F900-1F91D)
L 1F900,F800,5520,7803,8600,5520,F800,5522,7805
L 1F908,8030,28AC,5043,0075,9600,5500,B800,5502
L 1F910,7B04,C800,5528,7403,C800,5524,A800,5502
L 1F918,9600,5502,E820,0B09,70F0,0D67
*
* 14D69 FROM 7904 TO 7908
L 14D69,7908
*
* R08M05(14489)
* INITIALIZE SMOOTHED MTI FOR DISPLAY TO -65db
*
* 144B2,3 FROM 8520,01EB
L 144B2,70F0,3920
* PATCH AREA(1F920-1F927)
L 1F920,8600,5526,9600,5502,8520,01EB,70F0,04B4
*
* NEW CONSTANTS (C520-C529)
* C520,1 FLOATING POINT ,-6db
* C522,3 FLOATING POINT ,-50db
* C524,5 FLOATING POINT ,0.07 filter constant
* C526,7 FLOATING POINT ,-65db
* C528,9 FLOATING POINT ,0.3 filter constant
L C520,A000,0003,9C00,0006,47AE,14FD,BF00,0007
L C528,4CCC,CCFF
*
* NEW VARIABLES (C500-C503)
* C500,1 FLOATING POINT , MEASURED MTI
* C502,3 FLOATING POINT , SMOOTHED MTI
*
**************************************************************************
```

```
* ADD REPEATING INITIAL DIAGNOSIS COUNTER, IF COUNT EXCEEDS 2
COMPLETE
* FAULT ISOLATION ELSE DO NOTHING
**************************************************************************
*
* R08M03(143C1)
*
* INCREMENT AND TEST INITIAL DIAGNOSIS COUNTER   PATCH MODIFIED
04/27/90
* PATCH MODIFIED 05/22/90 TO CHANGE COUNT THRESHOLD FROM 4 TO 2
* LOCATION 1F944 CHANGED FROM F223 TO F221
* 1444B,C FROM 7EF0,1DBB
L 1444B,70F0,3940
* PATCH AREA(1F940-1F94D)
L 1F940,A300,5504,8020,5504,F221,7805,7EF0,1DBB
L 1F948,70F0,044D,9110,03CF,70F0,0486
*
* RESET INITIAL DIAGNOSIS COUNT
* 14479,A FROM 9100,054C
L 14479,70F0,3950
* PATCH AREA(1F950-1F955)
L 1F950,9100,054C,9100,5504,70F0,047B
*
* NEW VARIABLE (C504)
* C504 INTEGER, INITIAL DIAGNOSIS COUNTER
*
* R08M3A(1513B)
*
* RESET INITIAL DIAGNOSIS COUNTER            PATCH MODIFIED 03/28/90
* +5,6 FROM B122,0900
L 15140,70F0,3930
* PATCH AREA(1F930-1F935)
L 1F930,B122,0900,9100,5504,70F0,1142
*
* R08M3H(152CB)
*
* RESET INITIAL DIAGNOSIS COUNTER
* 155E7,8 FROM 9720,2189
L 155E7,70F0,3938
* PATCH AREA(1F938-1F93D)
L 1F938,9720,2189,9100,5504,70F0,15E9
*
* R08M3C(15245)                PATCH MODIFIED 03/28/90
*
* RESET INITIAL DIAGNOSIS COUNTER
* +3A,3B FROM 9100,054C
L 1527F,70F0,3928
* PATCH AREA(1F928-1F92D)
```

```
L 1F928,9100,054C,9100,5504,70F0,1281
*
**********************************************************************
* SEND HELP REQUEST FROM MISSION PHASE
**********************************************************************
*
* R08M3E(15286)
*
* 152A7 FROM 0106
L 152A7,740A
* 152B9 FROM 8221
L 152B9,7409
*
**********************************************************************
* MASK UNUSED FREQ. IN MASKED PATTERN
**********************************************************************
*
* R05M41(9C62)
* WHEN FREQ. ARE CHANGED CREATE MASK FROM ASSIGNED 6 FREQ. AND
F15 TO
* MASK FAULTS OF UNUSED FREQ. IN TEST BIT PATTERN
*
* 9C75,6 FROM 5360,E007
L 9C75,70F0,5B00
* PATCH AREA(BB00-BB19)
L BB00,5360,E007,B100,8212,9600,D508,9600,D50A
L BB08,B122,F224,7040,3C77,8500,C000,8042,AC83
L BB10,D247,A155,B455,6A05,E004,D508,9004,D508
L BB18,A220,74F0
*
* NEW VARIABLES(C508-C50B)
* C508 ,4 WORD TABLE, FREQ. MASK PATTERN, "1"= FAULT ENABLED
* C508 ,F0 TO F7 , BITS 0,1- F0,BITS 2,3- F1,... BITS 14,15- F7
* C509 ,F8 T0 F15, BITS 14,15(F15) SET = "1"
* C50A ,F16 TO F23
* C50B ,F24 TO F30,BITS 14,15(INVALID FREQ.) SET = "1"
*
* R08MS2(15D8F)
* AND FREQ. MASK PATTERN TO TEST BIT PATTERN
*
* 15DA3,4 FROM 4023,00D1
L 15DA3,70F0,3968
* PATCH AREA(1F968-1F977)
L 1F968,4023,4A3A,0099,760A,4A3A,009C,7907,8113
L 1F970,4A12,0099,E221,5508,4023,00D1,70F0,1DA5
*
**********************************************************************
* MODIFY FAULT EVIDENCES AND DIAGNOSTIC STEPS
```

```
***************************************************************************
*
* FAULT EVID.#16 , ADD MORE THAN 10 SINGLE CHANNEL RECEIVE SUM
CHANNEL
* TEST FAILURES TO FAULT EVID. CRITERIA
*
* R08M3H(152CB)
*
* 15380,1 FROM 80C0,28AC
L 15380,70F0,3958
* PATCH AREA(1F958-1F960)
L 1F958,8020,0557,F229,7030,13BA,80C0,28AC,70F0
L 1F960,1382
*
***************************************************************************
*
* FAULT EVID.#38 SEND HELP REQUEST IMMMEDIATELY
*
* R08MC3(D80B)
*
* FAULT EVID.#38 , R08T42 FROM 2,131,1 TO 1,131,0
*            R08T43 FROM 5,1 0,0 TO 0,0 0,0
L D85D,0506
L D90B,0000,0000
*
***************************************************************************
*
* FAULT EVIDENCES 2,3,8-17,19,21-23,29,31,37,39-43,76 & 79
* MODIFIED TO REMOVE RECONFIG OF SP TIMING AND I/O
*
* R08MC3(D80B)
*
* FE# 2, R08T42 FROM 5,0,0 TO 2,0,0
*      R08T43 FROM 1,1 2,2 3,3 4,4 0,50
*         TO   1,1 0,50 0,0 0,0 0,0
*
L D839,0800
L D889,0032,0000,0000,0000
*
* FE# 3, R08T42 FROM 5,5,0 TO 2,5,0
*      R08T43 FROM 5,1 2,2 3,3 4,4 0,51
*         TO   5,1 0,51 0,0 0,0 0,0
*
L D83A,080A
L D88E,0033,0000,0000,0000
*
* FE# 8, R08T42 FROM 6,17,0 TO 5,17,0
*      R08T43 FROM 5,1 6,6 2,2 3,3 4,4 0,6
```

```
*          TO   5,1 6,6 2,2 3,3 0,6 0,0
*
L D83F,1422
L D89D,0006,0000
*
* FE# 9, R08T42 FROM 6,23,0 TO 5,23,0
*       R08T43 FROM 1,1 3,3 2,2 7,7 4,4 0,7
*          TO   1,1 3,3 2,2 7,7 0,7 0,0
*
L D840,142E
L D8A3,0007,0000
*
* FE#10, R08T42 FROM 6,29,0 TO 5,29,0
*       R08T43 FROM 1,1 7,7 2,2 3,3 4,4 0,7
*          TO   1,1 7,7 2,2 3,3 0,7 0,0
*
L D841,143A
L D8A9,0007,0000
*
* FE#11, R08T42 FROM 6,35,0 TO 5,35,0          PATCH MODIFIED 03/30/90
*       R08T43 FROM 5,1 3,3 2,2 4,4 8,5 0,5
*          TO   5,1 3,3 2,2 8,5 0,5 0,0
*
L D842,1446
L D8AE,0805,0005,0000
*
* FE#12, R08T42 FROM 7,41,0 TO 6,41,0
*       R08T43 FROM 5,1 7,7 9,9 2,2 3,3 4,4 0,7
*          TO   5,1 7,7 9,9 2,2 3,3 0,7 0,0
*
L D843,1852
L D8B6,0007,0000
*
* FE#13, R08T42 FROM 8,48,0 TO 7,48,0
*       R08T43 FROM 5,1 8,8 7,7 9,9 2,2 3,3 4,4 0,8
*          TO   5,1 8,8 7,7 9,9 2,2 3,3 0,8 0,0
*
L D844,1C60
L D8BE,0008,0000
*
* FE#14, R08T42 FROM 6,56,0 TO 5,56,0
*       R08T43 FROM 5,1 7,7 2,2 3,3 4,4 0,7
*          TO   5,1 7,7 2,2 3,3 0,7 0,0
*
L D845,1470
L D8C4,0007,0000
*
* FE#15, R08T42 FROM 7,350,0 TO 6,350,0
```

```
*       R08T43 FROM 5,1 2,2 7,7 10,10 3,3 4,4 0,10
*              TO   5,1 2,2 7,7 10,10 3,3 0,10 0,0
*
L D846,1ABC
L D9EB,000A,0000
*
* FE#16, R08T42 FROM 5,69,0 TO 4,69,0
*       R08T43 FROM 5,1 6,6 3,3 4,4 0,52
*              TO   5,1 6,6 3,3 0,52 0,0
*
L D847,108A
L D8D0,0034,0000
*
* FE#17, R08T42 FROM 5,74,0 TO 4,74,0
*       R08T43 FROM 5,1 2,2 3,3 4,4 0,53
*              TO   5,1 2,2 3,3 0,53 0,0
*
L D848,1094
L D8D5,0035,0000
*
* FE#19, R08T42 FROM 6,357,0 TO 5,357,0
*       R08T43 FROM 5,1 2,2 3,3 6,6 4,4 0,53
*              TO   5,1 2,2 3,3 6,6 0,53 0,0
*
L D84A,16CA
L D9F1,0035,0000
*
* FE#21, R08T42 FROM 6,84,0 TO 5,84,0
*       R08T43 FROM 5,1 6,6 2,2 3,3 4,4 0,54
*              TO   5,1 6,6 2,2 3,3 0,54 0,0
*
L D84C,14A8
L D8E0,0036,0000
*
* FE#22, R08T42 FROM 6,90,0 TO 5,90,0
*       R08T43 FROM 5,1 6,6 2,2 3,3 4,4 0,55
*              TO   5,1 6,6 2,2 3,3 0,55 0,0
*
L D84D,14B4
L D8E6,0037,0000
*
* FE#23, R08T42 FROM 6,96,0 TO 5,96,0
*       R08T43 FROM 5,1 6,6 2,2 3,3 4,4 0,54
*              TO   5,1 6,6 2,2 3,3 0,54 0,0
*
L D84E,14C0
L D8EC,0036,0000
*
```

```
* FE#29, R08T42 FROM 6,107,0 TO 5,107,0
*      R08T43 FROM 5,1 6,6 2,2 3,3 4,4 0,61
*             TO   5,1 6,6 2,2 3,3 0,61 0,0
*
L D854,14D6
L D8F7,003D,0000
*
* FE#31, R08T42 FROM 9,115,0 TO 8,115,0
*      R08T43 FROM 5,1 7,7 10,10, 8,8 6,6 2,2 3,3 4,4 0,7
*             TO   5,1 7,7 10,10  8,8 6,6 2,2 3,3 0,7 0,0
*
L D856,20E7
L D902,0007,0000
*
* FE#37, R08T42 FROM 4,127,0 TO 2,127,0
*      R08T43 FROM 5,1 3,3 4,4 0,66
*             TO   5,1 0,66 0,0 0,0
*
L D85C,08FE
L D908,0042,0000,0000
*
* FE#39, R08T42 FROM 6,149,0 TO 5,149,0
*      R08T43 FROM 1,1 3,3 2,2 17,17 4,4 0,7
*             TO   1,1 3,3 2,2 17,17 0,7 0,0
*
L D85E,152A
L D921,0007,0000
*
* FE#40, R08T42 FROM 6,155,1 TO 5,155,1
*      R08T43 FROM 5,1 6,6 2,2 3,3 4,4 0,6
*             TO   5,1 6,6 2,2 3,3 0,6 0,0
*
L D85F,1537
L D927,0006,0000
*
* FE#41, R08T42 FROM 6,161,0 TO 5,161,0
*      R08T43 FROM 5,1 3,3 2,2 4,4 16,5 0,5
*             TO   5,1 3,3 2,2 16,5 0,5 0,0
*
L D860,1542
L D92C,1005,0005,0000
*
* FE#42, R08T42 FROM 4,167,0 TO 3,167,0
*      R08T43 FROM 2,2 3,3 4,4 0,67
*             TO   2,2 3,3 0,67 0,0
*
L D861,0D4E
L D931,0043,0000
```

```
*
* FE#43, R08T42 FROM 8,171,0 TO 7,171,0
*      R08T43 FROM 5,1 16,16 7,7 9,9 2,2 3,3 4,4 0,16
*          TO  5,1 16,16 7,7 9,9 2,2 3,3 0,16 0,0
*
L D862,1D56
L D939,0010,0000
*
* FE#76, R08T42 FROM 6,322,1 TO 3,322,1
*      R08T43 FROM 1,1 2,2 3,3 4,4 12,50 0,50
*          TO  1,1 12,50 0,50 0,0 0,0 0,0
*
L D883,0E85
L D9CB,0C32,0032,0000,0000,0000
*
* FE#79, R08T42 FROM 7,328,1 TO 6,328,1
*      R08T43 FROM 5,1 10,10 2,2 3,3 7,7 4,4 0,10
*          TO  5,1 10,10 2,2 3,3 7,7 0,10 0,0
*
L D886,1A91
L D9D5,000A,0000
*
***************************************************************************
* MODIFY SCR TEST MAP DIAGONAL THRESHOLDS
* FAULT EVIDENCES 23,28,33 & 35
***************************************************************************
*
* R08MHU(15B1B)
*
* +CA FROM CISP R2,3 TO CISP R2,1
* +CC FROM CISP R2,4 TO CISP R2,2
* +CE FROM CISP R2,6 TO CISP R2,3
* +D0 FROM CISP R2,7 TO CISP R2,4
* +E7 FROM CIM  R2,59 TO CIM R2,62
* +EA FROM CIM  R2,60 TO CIM R2,63
* +ED FROM CIM  R2,62 TO CIM R2,64
* +F0 FROM CIM  R2,64 TO CIM R2,65
*
L 15BE5,F220
L 15BE7,F221
L 15BE9,F222
L 15BEB,F223
L 15C02,003E
L 15C05,003F
L 15C08,0040
L 15C0B,0041
*
***************************************************************************
```

```
* MODIFY FAULT EVIDENCE 24 CRITERIA TO AT LEAST TWO SYMMETRICAL
T/R
* MODULE CURRENT PULSE BITS ARE SET WITHIN ROW 1 BITS 1-30
* "AND" SYMMETRICAL POWER OUTPUT BITS ARE SET IN BITS 1-15 AND 30-16
IN
* THE COMPOSITE(THE "OR") OF ROWS 1,2 AND 3
*************************************************************************
*
* R08MHU(15B1B)
*
* +190,1 FROM 9100,0560 TO JC UN,1F980
L 15CAB,70F0,3980
*
* PATCH AREA(1F980-1F9C4)
L 1F980,9100,0560,9100,5510,70F0,1CAD
*
* +1C8,9 FROM 1306,0801 TO JC UN,1F988
L 15CE3,70F0,3988
L 1F988,1306,0801,031A,7537,F220,751F,031B,F224
L 1F990,7930,8234,B132,019E,E223,880B,752A,019D
L 1F998,803F,001B,E223,880B,7524,7421,8530,0015
L 1F9A0,B132,01A0,E223,880B,751C,019E,803F,001B
L 1F9A8,E223,880B,7A14,7415,031B,F225,7612,F229
L 1F9B0,7910,8530,0015,B132,019E,E223,880B,7509
L 1F9B8,019E,803F,001B,E223,880B,7503,A300,5510
L 1F9C0,70F0,1CE5,031B,70F0,399E
*
* NEW VARIABLE (C510)
* C510 SYMMETRICAL TR BIT COUNT
*
* R08M3H(152CB)
*
* +173,4,5 FROM 0559,F221,7607 TO L R2,R08V63,BEZ $+8,NOP
L 1543E,5510,7508,FF00
*
* +17A,B FROM 9110,0556 TO JC UN,1F9D0
L 15445,70F0,39D0
*
* PATCH AREA(1F9D0-1F9F6)
L 1F9D0,80C0,28AC,0076,3078,307A,751D,9020,5511
L 1F9D8,0077,3079,307B,7517,9020,5512,8220,0B0D
L 1F9E0,030D,F22E,7910,8050,0556,7A0D,8630,5511
L 1F9E8,E232,880B,750A,825E,B152,E245,880B,7505
L 1F9F0,9110,0556,70F0,1447,A30F,000D,74EA
*
* NEW VARIABLES (C511,C512)
* C511 POWER OUTPUT COMPOSITE BITS 1-15
* C512 POWER OUTPUT COMPOSITE BITS 16-30
```

```
*
*************************************************************************
* FAULT EVIDENCE 34 ADD CRITERIA FOR FAILED SCR SUM CHANNEL TEST
MAP
* DIAGONAL NUMBER EQUAL TO FAILED DIAGONAL COMPUTED FROM DCR
FAILURE
*************************************************************************
*
* R08M3H(152CB)
*
* +215,6 FROM 8023,0538 TO JC UN,1FA40
L 154E0,70F0,3A40
*
* PATCH AREA(1FA40-1FA74)
L 1FA40,9100,5513,8023,0538,70F0,14E2
*
* +220 FROM 0556 T0 5513( L R3,ENDTEST)
L 154EB,5513
*
* +22A,B,C,D FROM 9110,0556,A24F,9040 TO JC UN,1FA48,BPT,ST R3,R08V40
L 154F5,70F0,3A48,FFFF,9030
L 1FA48,9110,5513,823F,A134,F030,0535,7508,823E
L 1FA50,B134,F030,0535,7503,70F0,14FA,9110,0556
L 1FA58,70F0,14F8
*
* +239 FROM 0556 TO 5513(L R3,ENDTEST)
* +245 FROM 0556 TO 5513(L R3,ENDTEST)
* +252 FROM 0556 TO 5513(STC 1,ENDTEST)
L 15504,5513
L 15510,5513
L 1551D,5513
*
* +25A,B FROM 9030,0552 TO JC UN,1FA60
L 15525,70F0,3A60
L 1FA60,F030,0535,750D,030D,C22B,B124,A221,4A26
L 1FA68,0048,A230,F030,0535,7503,70F0,1527,9030
L 1FA70,0552,9110,0556,70F0,1527
*
* NEW VARIABLE(C513)
* C513 END TEST FLAG
*
*************************************************************************
* FAULT EVIDENCE 35 ADD CRITERIA FOR NO SCR SUM CHANNEL TEST MAP
* DIAGONAL SET AND POWER OUTPUT TEST BIT MATCHES COMPUTED VALUE
BASED
* ON DCR BIT SET
*************************************************************************
*
```

```
* R08M3H(152CB)
*
* +264,5 FROM 8020,0557 TO L R2,R08V49 DIAG FULL CNT
L 1552F,8020,055A
*
* MODIFY +26F TO +283
L 1553A,9100,5513,8226,0B0F,85C0,0538,030F,F22B
L 15542,790D,8020,5513,7A0A,803F,000F,4003,F220
L 1554A,7020,3A00,A30F,000F,74F0
*
* PATCH AREA(1FA00-1FA36)
L 1FA00,9110,5513,B122,0B0D,030D,F224,792F,8030
L 1FA08,5513,F231,752B,80C0,28AC,A0CF,000F,007B
L 1FA10,804F,000D,E224,880B,751D,9120,5513,805F
L 1FA18,000F,B255,C25B,8125,A222,A124,4A26,0048
L 1FA20,A230,F030,055F,750A,8125,A221,B124,4A26
L 1FA28,0048,A230,F030,055F,7A05,9110,0556,9030
L 1FA30,0552,A30F,000D,70F0,3A04,70F0,154C
*
**********************************************************************
* CLEAR MEMORY LOCATION AFTER CPU PARITY ERROR(FAULT REG. BIT 2
SET)
* IS DETECTED BY MACHINE ERROR INTERRUPT PROCESSING
**********************************************************************
*
* R01M05(343F)
*
* 3520,1 FROM 4870,A004
L 3520,70F0,2660
* PATCH AREA(2660-2671)
L 2660,5620,A56B,750C,6535,4850,520F,825E,8520
L 2668,D300,6735,8580,FFFF,4850,E00E,4870,A004
L 2670,70F0,3522
*
**********************************************************************
* CORRECT CODING ERROR IN SP INIT. TESTING. I/O CMD USING BUS B
INSTEAD
* OF BUS A DURING RT#2 BUS A TESTING.
**********************************************************************
*
* R04M18(0B7C)
*
* 0C12 FROM 9C40
L 0C12,9C00
*
**********************************************************************
*
```

```
* CORRECT CODING ERROR IN ERROR PROCESSING PATH OF DETECTION
PROC. SUBROUTINE
* JA$STP CALLED INSTEAD OF BPT.
**************************************************************************
*
*
* R06M16(1246C)
*
* 1282D,E,F FROM B122,7EF0,4FA8
L 1282D,FFFF,B122,7433
*
**************************************************************************
**
** CORRECT CODING ERROR IN DPSP 1553B INITIALIZATION FOR RT2 TEST IN
THAT THE
** "THE SECOND 'BUSY' BIT RESET FLAG" WAS NOT SELECTED IN R04M17.
**************************************************************************
**
*
* R04M17(0ABA)                              12/14/89
*
* 0B51 FROM 00AAE
L 0B51,0AAF
**
**
**************************************************************************
*
***********************************************************************
*          TEST PATCH T30A          REVISED   05/22/90
*
* PMFI  REVISE FAULT EVIDENCES 30,31,39,45 AND ADD FE'S 62 & 63 FOR
* DETECTION PROCESSOR ASSY & INPUT MEMORY ASSY,RESPECTIVELY.
*
* R08MC3(D80B)
*
* TABLE R08T42 MODIFY FE 31,39,45 & 46 (FE 46 MOVED IN R08T43 TABLE TO
* MAKE ROOM FOR FE 45 MOD) AND ADD FE 62 & 63 (FE 62 & 63 SPARE SLOTS
USED)
* FE 45,46 @ +59,5A FROM 5,180,1(1569) 5,185,1(1573)
*          TO  11,179,0      5,7,1      PATCH MODIFIED 04/27/90
*
L D864,2D66,140F
*
* FE 62,63 @ +6A,6B FROM 4,267,1(1217) 4,275,1(121F)
*          TO  9,132,0      7,141,0
*
L D875,2508,1D1A
*
```

```
* FE 31 @ +4B FROM 8,115,1(20E7) T0 9,115,0
*
L D856,24E6
*
* FE 39 @ +53 FROM 5,149,0(192A) TO 4,149,0
*
L D85E,112A
*
* TABLE R08T43 MODIFY FE 31,39,45,46 AND ADD FE 62 & 63
* FE 31 @ +F0 FROM 5,1 7,7 10,10 8,8 6,6 2,2 3,3 0,7 0,0
*         TO  5,1 7,7 5,7 10,10 8,8 6,6 2,2 3,3 0,7
*
L D8FB,0501,0707,0507,0A0A,0808,0606,0202,0303
L D903,0007
*
* FE 39 @ +112 FROM 1,1 3,3 2,2 17,17 0,7 0,0
*          TO  1,1 3,3 2,2 0,7
*
L D920,0007,0000
*
* FE 46(MOVE TO MAKE ROOM FOR FE 45)
*     +BB FROM 0,0 0,0 0,0 0,0 0,0
*        TO  5,1 19,19 11,11 4,4 0,19
*                                 PATCH MODIFIED 04/27/90
L D88F,0501,1313,0B0B,0404,0013
*
* FE 45 @ +13D FROM 0,0 5,1 18,18 11,11 4,4 0,18 5,1 19,19 11,11 4,4 0,19
*          TO  5,1 18,18 24,24 23,23 25,25 11,11 20,20 22,22 21,21
*              4,4 0,44
*                                 PATCH MODIFIED 04/27/90
L D93B,0501,1212,1818,1717,1919,0B0B,1414,1616
L D943,1515,0404,002C
*
* FE 62 & 63 (USE FE 38 SPARE AREA)
*
L D90C,0501,2727,0E0E,1C1C,2222,2121,0D0D,0404
L D914,002D,0501,0909,2424,0F2A,232B,0404,002E
*
* TABLE R08T63 ADD REPORT DATA FOR INPUT MEMORY SUM MONO CORR,
* INPUT MEMORY DELTA MONO CORR,DOPPLER FILTER ASSY,DETECTION
PROCESSOR
* ASSY AND INPUT MEMORY ASSY
* SPARE @ +26F TO 5,21,0 5,21,1 5,36,0 5,43,0 5,22,0
*
L DA7A,5150,5151,5240,52B0,5160
*
* R08M3H CONSTANTS(155ED)
*
```

```
* CHANGE ORDER OF FE PROCESSING(USE FE 62,63 FOR ADDED FE'S)
* FROM ...67,48,74,66,73,47,46,45,49,50,51,52,53,77,56,57,54,55,58,59,60
*     61,62,63
* TO  ...73,63,67,66,46,45,48,74,47,49,50,51,52,53,77,54,55,62
*     56,57,58,59,60,61
*
L 15642,0049,003F,0043,0042,002E,002D,0030,004A
L 1564A,002F,0031,0032,0033,0034,0035,004D,0036
L 15652,0037,003E,0038,0039,003A,003B,003C,003D
*
* R08MHU(15B1B)
*
* SET NEW VAR R08V64 BIT 0 IF ANY BIT SET IN TEST BIT PATTERN INPUT
MEMORY
* ASSY AREA, BIT 1 IF BIT SET IN PC ASSY AREA, BIT 2 IF BIT SET IN DOPPLER
* FILTER ASSY AREA AND BIT 3 IF BIT SET IN DETECTION PROCESSOR ASSY
*
* +1F6,1F7 FROM 4AF1,001F TO 70F0,3A80 (JC UN,1FA80)
* PATCH AREA 1FA80 - 1FAA9
*                                   PATCH MODIFIED 04/27/90
L 15D11,70F0,3A80
L 1FA80,9100,552A,B122,0B1C,031C,F22E,7B0B,81C2
L 1FA88,A0C0,28AC,0003,7503,5000,552A,A30F,001C
L 1FA90,74F4,80C0,28AC,0012,3013,3014,3015,7503
L 1FA98,5010,552A,0016,3017,3018,7503,5020,552A
L 1FAA0,0019,301A,301B,7503,5030,552A,4AF1,001F
L 1FAA8,70F0,1D13
*
* NEW VAR R08V64 @ C52A
*
* R08M3H(152CB)
*
* FE 30 ADD CONDITION NO SP TEST BIT SET IN INPUT MEMORY, PC, DOPPLER
* FILTER AND DETECTION PROCESSOR AREAS
* +1CF,1D0  FROM 9110,0556 TO 70F0,3AB0 (JC UN,1FAB0)
* PATCH AREA 1FAB0 - 1FABF
*
L 1549A,70F0,3AB0
L 1FAB0,8040,552A,7A03,9110,0556,70F0,149C
*
* FE 31 ADD SAME SP TEST BIT CONDITION AS FE 30
* +1D8,1D9  FROM 9110,0556 TO 70F0,3AB8 (JC UN,1FAB8)
*
L 154A3,70F0,3AB8
L 1FAB8,8030,552A,7A03,9110,0556,70F0,14A5
*
* R08MHB(1572D)
*
```

```
* FE 45 ADD CONDITION NO SP TEST BIT SET IN INPUT MEMORY, PC, AND
* DETECTION PROCESSOR AREAS
* +D2,D3 FROM F023,795A TO 70F0,3AC0 (JC UN,1FAC0)
* PATCH AREA 1FAC0 - 1FAD0
*
L 157FF,70F0,3AC0
L 1FAC0,7505,F023,795A,70F0,1801,4A27,8000,7508
L 1FAC8,8030,552A,4A37,D000,7A03,9110,0556,70F0
L 1FAD0,192B
*
* R08MHB CONSTANTS(1592F)
*
* ADD FE 62 & 63 USE FE 62 & 63 SLOTS IN JUMP TABLE VR 02165
* +18,19 FROM 1830,1830 T0 3B68,3B78
* PATCH AREA 1FB68 - 1FB86
*
L 15947,3B68,3B78
L 1FB68,80C0,28AC,0019,4A27,8000,7508,8030,552A
L 1FB70,4A37,E000,7A03,9110,0556,70F0,192B
L 1FB78,80C0,28AC,0011,4A27,8000,7508,8030,552A
L 1FB80,4A37,7000,7A03,9110,0556,70F0,192B
*
* R08M4B(D288)
*
* ADD REPORTING FOR NEW FAULTS
* +8E FROM OO32(50) TO OO2A(42)
L D316,002A
*
* +A6,A7 FROM B122,0B10 TO 70F0,3AD8(JC UN,1FAD8)
* PATCH AREA 1FAD8 - 1FAEF
*                                   PATCH MODIFIED 04/27/90
L D32E,70F0,3AD8
L 1FAD8,4A3A,002C,7B12,8222,0B05,8223,0B06,4A3A
L 1FAE0,002B,7B03,822E,7402,822D,0B07,B122,0B10
L 1FAE8,8226,0B11,70F0,2331,B122,0B10,70F0,2330
*
* RO8M4B CONSTANTS(D520)
*
* ADD NEW REPORTS TO VR 0344F JUMP TABLE      PATCH MODIFIED 04/27/90
* +28 - 2C FROM 2340(+B8) TO 236F(+E7),236F,23C2(+13A),23C2,23C2
L D548,2383,236F,23C2,23C2,23C2
*
****************************************************************
* SET BAD COLUMNS GT 3 ONLY IF FAIL CONDITION EXISTS FOR 10
* SUCCESSIVE MEASUREMENT INTERVALS
* R08MS1(15D1A)
*
* INCREASE LOCAL STORAGE BY 1
```

```
* +1 FROM B2F5 TO B2F6
L 15D1B,B2F6
* LOCAL VAR +6 = COLUMN FAULT FLAG(CURRENT MEASUREMENT)
*
* +6,7,8 FROM 5380,2199,B122 TO FF00,B122,0B06
L 15D20,FF00,B122,0B06
*
* +36,37 FROM 5080,2199 TO 911F,0006
L 15D50,911F,0006
*
* +3E,3F FROM 5680,2199 TO  FF00,0306
L 15D58,FF00,0306
*
* +6D,6E FROM 5080,2199 TO 911F,0006
L 15D87,911F,0006
*
* +72,73 FROM A2F5,8FC3 TO 70F0,3AF0(JC UN,1FAF0)
* PATCH AREA 1FAF0 - 1FB01
*
L 15D8C,70F0,3AF0
L 1FAF0,0306,750A,A300,552B,8020,552B,F228,7806
L 1FAF8,5080,2199,7405,9100,552B,5380,2199,A2F6
L 1FB00,8FC3,7FF0
*
* NEW VAR C52B = R08V65 COLUMN FAULT COUNTER
*
* R08M05(14489)
*
* INITIALIZE RO8V65 AT STARTUP
* +BF,C0 FROM 0903,0904 TO 70F0,3B08(JC UN,1FB08)
* PATCH AREA 1FB08 -1FB0F
*
L 14548,70F0,3B08
L 1FB08,0903,0904,9100,552B,70F0,054A
*
**************************************************************************
* PREVENT CANCELLATION OF FAILURE REPORTING AFTER ELIMINATION OF
* FAULT BY RECONFIGURATION DUE TO INTERMITTENT FAILURE CONDITION
*
* R08MS2(15D8F)
* LOGICAL "AND" R08T05 PREVIOUS MASK PATTERN WITH TEST BIT PATTERN
* TO FORM MASKED PATTERN INSTEAD OF R08TO1 FAULT MASK BIT PATTERN
* IF INITIAL DIAGNOSIS COUNTER > 2 (IN RECONFIG), ALSO DO NOT UPDATE
* PREVIOUS MASK PATTERN WITH COMPUTED MASK PATTERN IF THIS
CONDITION
* IS TRUE.
*
* PATCH MODIFIED 05/22/90 TO CHANGE COUNT THRESHOLD FROM 4 TO 2
```

```
* LOCATION 1FB12 FROM F223 TO F221, 1FB22 FROM F213 TO F211, 1FB2A FROM
*  F233 TO F231, 1FB3B FROM 8224 TO 8222, 1FB5C FROM F223 TO F221
*
* +6,7 FROM 8222,0B00 TO 70F0,3B10 (JC UN,1FB10)
* PATCH AREA 1FB10 - 1FB27
*
L 15D95,70F0,3B10
L 1FB10,8020,5504,F221,7904,85D0,25BA,7403,85D0
L 1FB18,043B,8222,0B00,70F0,1D97
*
* +12,13 FROM E223,25BA TO FFOO,41E3 (NOP,ANDX B13,R3)
L 15DA1,FF00,41E3
*
* +24,25 FROM 9023,043B TO 70F0,3B20 (JC UN,1FB20) PATCH MODIFIED 04/27/90
L 15DB3,70F0,3B20
L 1FB20,8010,5504,F211,7903,9023,043B,70F0,1DB5
*
* R08M3H(152CB)
* SET FAULT STATUS = "NO FAULT" IF LAST DIAGNOSIS NOT EQUAL TO
CURRENT
* DIAGNOSIS AND INITAL DIAGNOSIS COUNT > 2 (IN RECONFIG.). THIS WILL
* CAUSE ENTRY TO CLEARED FAULT PATH(I.E FAILURE REPORTING)
* +313,314 FROM 9B20,2188 TO 70F0,3B28 (JC UN,1FB28)
* PATCH AREA 1FB28 - 1FB33
*                                   PATCH MODIFIED 04/27/90
L 155DE,70F0,3B28
L 1FB28,8030,5504,F231,7805,8220,0A00,70F0,15E9
L 1FB30,9B20,2188,70F0,15E0
*
* R08M05(14489)
* AT STARTUP SET INITIAL DIAGNOSIS COUNTER TO 3 (IN RECONFIG) IF
* INIT DIAGNOSIS SENT FROM STATION CONTROLLER IS NON ZERO AND 0
* IF ZERO SENT
* +17,18 FROM 002C,0900 TO 70F0,3B38 (JC UN,1FB38)
* PATCH AREA 1FB38 - 1FB3F
*
L 144A0,70F0,3B38
L 1FB38,002C,0900,7502,8222,9020,5504,70F0,04A2
*
* R08M4A(D000)
* TRANSFER PREVIOUS MASK PATTERN TO OUTPUT TEST BIT PATTERN IF
NEXT
* RECONFIG REQUIRES A RELOAD OR DP SWITCHOVER
* +9D,9E FROM 0B04,0302 TO 70F0,3B40 (JC UN,1FB40)
* PATCH AREA 1FB40 - 1FB52
*                                   PATCH MODIFIED 04/27/90
L D09D,70F0,3B40
L 1FB40,0B04,0302,750E,F221,790C,8242,FF00,4A4A
```

```
L 1FB48,00BA,7B07,8054,043B,9054,24FE,A240,74F8
L 1FB50,0302,70F0,209F
*
* R08M01(14032)
* REQUEST TEST BIT PATTERN AND FAULT DIAGNOSIS BE SENT TO STATION
* CONTROLLER WHEN INITIAL DIAGNOSIS COUNT = 2 (1 COUNT BEFORE
STARTING
* FAULT ISOLATION PROCESS
* +C7,C8 FROM 7EF0,03C1 TO 70F0,3B58 (JC UN,1FB58)
* PATCH AREA 1FB58 - 1FB67
*
L 140F9,70F0,3B58
L 1FB58,7EF0,03C1,8020,5504,F221,7A09,5000,2183
L 1FB60,5070,2182,5040,21A0,5030,21A0,70F0,00FB
*
*****************************************************************
* R08M2D(14CDB)                    ADDED   03/28/90
*                           MODIFIED  05/22/90
* SET MTI TEST RANGE POSITION FOR NEXT MEASUREMENT PERIOD TO
RANGE BIN
* HAVING PEAK AMPLITUDE IN CURRENT DATA. USE AMPLITUDE FROM
RANGE BIN
* SPECIFIED FOR CURRENT PERIOD AS V MIDDLE'SQR RATHER THAN PEAK.
*
* +02 AND +9C FROM 0014 TO 0017(INCREASE STACK SIZE BY 3)
* NEW LOCAL VAR'S :
*   VSQRMAX S31 @ STACK +14,15
*   MTI'RANGE'INDEX U @ STACK +16
L 14CDD,0017
L 14D77,0017
*
* REPLACE VMIDDLE'SQR WITH VSQRMAX @ +0B,2F,32, 3B AND 49( 49 ADDED
05/22/90)
L 14CE6,0F14
L 14D0A,0014
L 14D0D,0014
L 14D16,0014
L 14D24,0714
*
* +17,18 FROM B122,0B00 TO 70F0,3B88 (JC UN,1FB88)
L 14CF2,70F0,3B88
* PATCH AREA (1FB88 - 1FB91)
L 1FB88,8020,2397,4A22,01EA,C229,0B16,B122,0B00
L 1FB90,70F0,0CF4
*
* +3F,40 FROM A39F,000A TO 70F0,3B94
L 14D1A,70F0,3B94
* PATCH AREA (1FB94 - 1FB9C)
```

L 1FB94,0316,3B0A,7A03,0701,0F03,A39F,000A,70F0
L 1FB9C,0D1C
*
****
* R08M4B(D288) ADDED 03/28/90
*
* CLEAR R08T05 PREV PATTERN TABLE IF HARD FAILURE REPORTED
* THIS PATCH REPLACES PATCH 04
*
* +28C - +28F FROM 9B20,2188,9C20,2188 TO 9C20,2188,70F0,3BA0
L D514,9C20,2188,70F0,3BA0
* PATCH AREA (1FBA0 - 1FBB3)
L 1FBA0,5640,2182,7020,251C,8222,0B1A,031A,4A2A
L 1FBA8,00BA,7906,9102,043B,A30F,001A,74F8,B122
L 1FBB0,9B20,2188,70F0,2518
*
* INCREASE STACK SIZE BY 1 ,LOOP COUNT VAR ADDED TO STACK @ +1A
L D51D,001B
L D2EB,001B
*
****
* R08MHB(1572D) ADDED 05/22/90
*
* FAULT EVIDENCE 69 ADD CRITERIA NO OTHER BIT SET IN OTHER SIGNAL
* PROCESSOR MAPS
* +137,138 FROM NOOP,NOOP(PATCH 29) TO JC UN,1FBB8
L 15864,70F0,3BB8
* PATCH AREA (1FBB8 - 1FBBF)
L 1FBB8,8020,552A,4A27,B000,7020,1866,70F0,1868
*
****
****
* TEST PATCH 30B 3/15/90
*
* PATCH TO R05M03 SYSTEM INITIALIZATION SCHEDULING
*
* THIS PATCH IS PRIMARILY TO THE SECOND INITIALIZATION FRAME TO
OUTPUT
* AN ADDITIONAL 72 HRR LONG RANGE AND 24 HRR SHORT RANGE
SCHEDULE IN-
* TERVALS. THE THIRD INITIALIZATION FRAME HAS BEEN MODIFIED TO
CALL
* SEARCH INITIALIZATION (RO5M10) AT SCHEDULE TIME 205 AND LOAD
MONIT.
* AND CONTROL (R05M40) AT SCHEDULE TIME 215.
*
* R05M03 (0755D) --- TASK1
*

```
* M0DIFY CASE STATEMENT IN THE SECOND INITIALIZATION FRAME TO DO
THE
* FOLLOWING:
*        SCHED. INT W/I FRAME       NEW ACTION TO BE TAKEN
*           195 - 266           SETUP TO OUTPUT 72 HRR L.R.S
*           267 - 290           SETUP TO OUTPUT 24 HRR S.R.S
*
L 07685,7605,4A2A,010A
L 07688,7030,5CA0,4A2A,010B,7605,4A2A,0122,7030
L 07690,5CA6,4A2A,0123,7605,4A2A,0125,7030,5CAC
L 07698,FF00,FF00,FF00
*
* THE NEXT CODE IS FOR THE 3 LR NEW PATCHES
*
L 0BCA0,FF00,FF00,7EF0,5CB1,70F0,16E1,FF00,FF00
L 0BCA8,7EF0,5D4E,70F0,16E1,FF00,7EF0,1000,70F0
L 0BCB0,16E1
*
*
*THE NEXT CODE IS THE NEW HRLR PROCEDURE
L 0BCB1,9FC8,B2F0,85C0,BB65,85D0,DDB0,8520
L 0BCB8,000A,0801,B122,0800,8220,0816,FF00,B122
L 0BCC0,0812,0014,B133,9023,C65B,903F,0000,FF00
L 0BCC8,FF00,85C0,DDCA,85D0,D619,85E0,BB79,0300
L 0BCD0,3A02,FF00,B133,8540,001F,805F,0000,4105
L 0BCD8,9732,D621,0200,8045,D619,9B24,D622,FF00
L 0BCE0,5084,D622,8560,2ED9,9064,D625,8075,AC8A
L 0BCE8,9137,2001,8155,FF00,8020,AC78,F221,FF00
L 0BCF0,8580,1036,0100,9082,D61F,70F0,5D08,0000
L 0BCF8,0000,0000,0000,0000,0000,0000,0000,0000
L 0BD00,0000,0000,0000,0000,0000,0000,0000,0000
L 0BD08,7EF0,2136,7EF0,1D7C,A300,BB79,0200,4A2A
L 0BD10,0048,7604,B122,0A00,FF00,FF00,A2F0,8FC8
L 0BD18,7FF0,0000,0000,0000,0000,0000,0000,0000
*
*
* THE NEXT CODE IS A PATCH TO THE FRAME 3 CASE STATEMENT.
* IT IS MODIFIED SO AS TO CALL SEARCH INIT AT S.I. W/I FRAME 205
* AND LOAD MONITORING AND CONTROL AT S.I. W/I FRAME 215.
*
* CHANGE LOC 076CD,E FROM 4A2A,00C7 TO A JUMP TO PATCH @ 0BD20.
*  (0B) TRANSLATES TO AN ADD.STATE OP.CODE OF 5.
L 076CD,70F0,5D20
*
L 0BD20,4A2A,00C7,7605,4A2A,00CC,7030,16AD,4A2A
L 0BD28,00CD,7020,5D40,4A2A,00CE,7605,4A2A,00D6
L 0BD30,7030,16AD,4A2A,00D7,7020,5D46,4A2A,00D8
L 0BD38,7605,4A2A,0125,7030,16AD,70F0,16D3,0000
```

```
*
* THE NEXT CODE IS TO SCHED. IDLES (RO5M06) THEN SEARCH INIT. (RO5M10)
L 0BD40,7EF0,1000,7EF0,23EC,70F0,16D4
*
* THE NEXT CODE IS TO SCHED.IDLES (RO5M06) THEN LOAD MONIT & CONT
(M40)
L 0BD46,7EF0,1000,7EF0,2E53,70F0,16D4,0,0
*
*
*
* THE NEXT CODE IS FOR HRSR THE NEW HRR S.R. PROCEDURE
L 0BD4E,9FC8,B2F0
L 0BD50,85C0,BB65,8520,000A,0801,FF00,8220,0800
L 0BD58,8220,0816,B122,0B00,85C0,DDB0,85D0,BB79
L 0BD60,85E0,D619,FF00,FF00,0102,FF00,FF00,FF00
L 0BD68,FF00,B133,8540,001F,805F,0000,4205,9732
L 0BD70,D621,0100,8045,D619,FF00,FF00,9B24,D622
L 0BD78,A125,9025,C65B,5084,D622,8024,D622,FF00
L 0BD80,6172,A220,9B24,D624,5084,D624,0100,A221
L 0BD88,9B24,D626,5084,D626,8560,06AF,9064,D628
L 0BD90,8075,AC8A,9137,2001,8155,FF00,8020,AC78
L 0BD98,FF00,FF00,8580,1076,0200,FF00,9082,D61F
L 0BDA0,FF00,FF00,FF00,FF00,7EF0,21CC,7EF0,1D7C
L 0BDA8,A320,BB79,0100,FF00,4A2A,0048,7605,B122
L 0BDB0,0900,FF00,FF00,A2F0,8FC8,7FF0
*
*
*************************************************************************
*************************************************************************
*        TEST PATCH 30C                    07/02/90
*
* R08M2A (145CD)
* MODIFY RECEIVER NOISE SOURCE TEST TO TEST ABSOLUTE NOISE
MAGNITUDE
* FOR TEST C IN ADDITION TO TEST C/TEST A RATIO
*
* LOCATIONS 146AC,D(DF,E0) FROM 6002,6102 TO JC UN,1FBC0 (PATCH)
* LOCATIONS 146CF,D0(102,103) FROM 6002,6102 TO JC UN,1FBC8 (PATCH)
* PATCH AREA 1FBC0 - 1FBCE
L 146AC,70F0,3BC0
L 146CF,70F0,3BC8
L 1FBC0,6002,6102,F224,7060,06B9,70F0,06AE
L 1FBC8,6002,6102,F224,7060,06DC,70F0,06D1
*************************************************************************
**********************************************************************
*          TEST PATCH T27                 06/11/90
*                        MODIFIED  07/02/90
* THIS PATCH REPLACES APPROVED PATCH 27 AND MODIFIES APPROVED
```

```
* PATCH 6 TO CORRECT TRACK AGE OVERFLOW PROBLEM
* MODIFY USE OF TRACK AGE COMPUTATION ( CURRENT - START TIME) TO
* COMPENSATE FOR SCHEDULE TIME OVERFLOW IN ABOUT 11 MINUTES
*
* R07M05 (17000)
*
* DELETE USE OF R07VVY TRK CRED THRESH. R07VVY TO BE USED IN PATCH
* TO STORE TRACK AGE.
*
L 17119,FF00,FF00,FF00
L 17127,FF00,FF00,FF00
*
* R07M06 (171F9)
*
* SET R07T01 REPORT DELAY FLAG IF TRACK AGE > 140 SEC. COMPUTE
* TRACK AGE (R07VVY) FOR USE BY OTHER MODULES IF FLAG NOT SET.
* SET TRACK AGE TO 140 SEC. IF FLAG SET
*
L 17207,70F0,25C0,9020,DA36
L 1F5C0,5613,1643,7A0A,8020,4C79,B023,161F,4A2A
L 1F5C8,1ACF,7605,5013,1643,8520,1ACF,70F0,1209
*
* R07M08 (17883)
*
* MODIFY TRACK NON-CREDIBLE TO CREDIBLE CRITERIA TO BYPASS REPORT
* DELAY COMPUTATION IF R07T01 REPORT DELAY FLAG IS SET(TRACK AGE
>140 SEC)
*
L 17AF8,8090,DA36,4A9A,1ACF,7B18,4A9A,00C4,7836
L 17B00,FF00,FF00,FF00
*
L 17B0F,FF00,FF00,FF00,FF00,FF00
*
* DELETE USE OF R07T01 CRED TIME PARAMETER TO FREE STORAGE AREA
FOR
* USE AS R07T01 REPORT DELAY FLAG
*
L 17B31,FF00,FF00,FF00,FF00
*
* DELETE REPORTING DELAY RUN DOWN COMPUTATION FOR CREDIBLE TO
NON-CREDIBLE
* TESTS.MOVE CHECK FOR RANGE > 70 NM AFTER CHECK FOR TRACK GRD
SPEED <
* GRD SPEED THRESH - 20 KNOTS (MODIFIES PATCH 6)
*
L 17B3B,8064,1640
*
L 17B46,7B1C,8604,1604,F800,6ACA,782F,82B1,7416
```

```
L 17B4E,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 17B56,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 17B5E,FFFF,FFFF,FFFF,FFFF,82B4
*
* CLEAR PATCH AREA NO LONGER USED FOR PATCH 6
*
L 17E80,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 17E88,FFFF,FFFF,FFFF,FFFF
*
* R07M09 (16E14)
*
* INITIALIZE R07T01 REPORT DELAY FLAG (EXTRA TARGET)
*
L 16E79,70F0,25D0
*
L 1F5D0,910A,163D,910A,1643,70F0,0E7B
*
* R07M10 (17B96)
*
* UTILIZE COMPUTED TRACK AGE (R07VVY) AND REPLACE COMPUTED
FRAME
* REPORTING IN COMM PRIORITY FUNCTION WITH R07T01 TIMS REP( NUMBER
* OF TIMES TARGET WAS REPORTED)
*
L 17BE3,FF00,FF00,8070,DA36
*
L 17C53,8023,163D,4A2A,0064,7B14,FF00,FF00
*
L 17C68,FF00,FF00,7404
*
* R07M13 (16B5C)
*
* INITIALIZE R07T01 REPORT DELAY FLAG (NEW TARGET)
*
L 16B9B,70F0,25D8
*
L 1F5D8,9104,163D,9104,1643,70F0,0B9D
*
* R07M14 (17C95)
*
* INITIALIZE R07T01 REPORT DELAY FLAG
*
L 17CAD,70F0,25E0
*
L 1F5E0,9102,1626,9102,1643,70F0,1CAF
*
**********************************************************************
**********************************************************************
```

```
*           TEST PATCH T29                  02/16/89
* INITIALIZE AGC COUNT AND NOISE ACCUMULATORS FOR PMFI FREQ (F15)
* IN RECONFIG. PRI. TEST PHASE BEFORE 11 END TO END TESTS FOR
* PMFI AGC INIT.
*
* RO5M02 (0741C)
*
L BAAA,B722,9020,396D,9620,396E,9620,3970,70F0,14FE
*
***********************************************************************
************************************************************************
*           TEST PATCH T32                  07/13/90
*
* REDUCE FALSE REPORTS DUE TO BIRD ACTIVITY
*
* R06M25(1334E)
* MODIFY LOAD MONITOR & CONTROL THRESHOLDS TO MAKE DOPPLER
FILTER
* THRESHOLDS MORE SENSITIVE TO LONE DETECTIONS IN CONTROL REGIONS
* +231 CHANGE FROM 1200(04B0) TO 600(0258)
L 1357F,0258
*
* +274 CHANGE FROM 600(0258) TO 40(0028)
L 135C2,0028
*
* +337 CHANGE FROM 100(0064) TO 10(000A)
L 13685,000A
*
* +2FE CHANGE FROM -400(FE70) TO -30(FFE2)
L 1364C,FFE2
*
* +3C1 CHANGE FROM 50(0032) TO 5(0005)
L 1370F,0005
*
* R07M03(16639)
* MODIFY DROP TRACK LOGIC TO DELETE TRACK BASED ON TRACK PRIORITY
*  PRI 1 DROP AFTER 3 MISSES IN A ROW
*  PRI 2 DROP AFTER 2 MISSES IN A ROW
*  PRI 3 DROP AFTER 2 MISSES IN A ROW
*  PRI 4 & 5 DROP AFTER 1 MISS OR REPORT DELAY FLAG SET
*
* +3C,3D CHANGE FROM F221,7A4B TO 70F0,06EC(JC UN,LB 00B3)
L 16675,70F0,06EC
*
* +9E TO +C3 CHANGED
L 166D7,8023,163B,7605,8320,9023,163B,7403,B303
L 166DF,163B,8043,1624,8023,163B,F024,6530,7960
L 166E7,85C0,DA10,7414,FFFF,FFFF,F221,7020,0677
```

```
L 166EF,8025,1624,F223,7010,06C1,5615,1643,7050
L 166F7,0677,70F0,06C1,FFFF,FFFF,FFFF
*
* INCREMENT HIT/MISS COUNT IN HIT PROCESSING
* +14C,14D CHANGE FROM 9035,163B TO A305,163B
L 16785,A305
*
* LOCATIONS 0C530-0C535 CONTAIN HIT/MISS COUNT THRESHOLD CONSTANT
* TABLE R07KT1 WITH VALUES OF 0,-3,-2,-2,-1,-1,RESPECTIVELY
* VALUES ARE SET IN R07M14 PATCH
*
* R07M05(17000)
* SET TRACK DROP THRESHOLD TIME FOR TARGETS NOT GATED TO 30 SEC.
FOR
* CREDIBLE TARGETS & 18 SEC. FOR NON-CREDIBLE
*
* +109 TO +120 CHANGED
L 17109,7418,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 17111,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 17119,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
*
* +127 TO +12D CHANGED
L 17127,7407,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
*
* +4 T0 +64 CHANGED
L 17004,7461,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 1700C,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 17014,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 1701C,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 17024,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 1702C,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 17034,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 1703C,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 17044,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 1704C,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 17054,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 1705C,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF,FFFF
L 17064,FFFF
*
* R07M08(17883)
* ADD HIT/MISS COUNT >= 2 TO TRACK CREDIBILITY CRITERIA
*
* +269,26A CHANGE FROM 70F0,1E60 TO 70F0,1E98
L 17AEC,70F0,1E98
L 17E98,8062,163B,F261,7010,1B35,70F0,1E60
*
* R07M14(17C95)
* DELETE INITIALIZATION OF UNUSED VARIABLES R07VZZ,R07VAA,R07VBB
```

```
* & R07VCC. INITIALIZE HIT/MISS COUNT THRESHOLD CONSTANT TABLE
R07KT1
*
* +84 TO +8A CHANGED
L 17D19,B122,8332,8341,9A20,6530,70F0,1EA0
L 17EA0,8321,8330,8340,9A20,6533,70F0,1D20
*
******************************************************************
*******************************************************************
*           TEST PATCH T33                    07/12/90
* DELETE ZERO DOPPLER FILTER SEARCH OUT OF GATE DETECTIONS
*
* R06M05(1146E)
* DELETE DETECTIONS IF ALL ASSOCIATED DETECTIONS ARE IN DOPPLER
* FILTER "0".
* CHANGE FOLLOWING LOCATIONS:
*     LOC    FROM    TO
*     115B7  0306    800F
*     115B8  0B1A    0006
*     115B9  85C0    801F
*     115BA  03A2    0007
*     115BB  031A    7EF0
*     115BC  3B07    3470
*     115BD  7B1E    70F0
*     115BE  8032    05DB
*     115BF  050D    FFFF
L 115B7,800F
L 115B8,0006,801F,0007,7EF0,3470,70F0,05DB,FFFF
*
* CHANGE FOLLOWING LOCATIONS:
*     LOC    FROM    TO
*     11635  0306    800F
*     11636  0B1B    0006
*     11637  85C0    801F
*     11638  03A2    0007
*     11639  031B    7EF0
*     1163A  3B07    3470
*     1163B  7B1E    70F0
*     1163C  8032    0659
*     1163D  050D    FFFF
L 11635,800F,0006,801F
L 11638,0007,7EF0,3470,70F0,0659,FFFF
*
* CHANGE FOLLOWING LOCATIONS:
*     LOC    FROM    TO
*     116CF  0306    800F
*     116DO  0B1C    0006
*     116D1  85C0    801F
```

```
*     116D2   03A2    0007
*     116D3   031C    7EF0
*     116D4   3B07    3470
*     116D5   7B1E    70F0
*     116D6   8032    06F3
*     116D7   050D    FFFF
L 116CF,800F
L 116D0,0006,801F,0007,7EF0,3470,70F0,06F3,FFFF
*
*
* NEW VARIABLES:
*          0C177 = ZDF LDR CNT
*          0C200 - 0C24F  POINTER STORAGE AREA
*
* CONSTANT:
*       0C175,6  3642,0010 - 27780 METERS (15 NM)
L 0C175,3642,0010
*
*
* R06M01 (110F1)
* 11161,2  (+70,71) FROM 804F,0000  TO JC UN,1F4C0
L 11161,70F0,34C0
*
L 1F4C0,8040,F177,7030,34EE,B122,0B08,0308,F020
L 1F4C8,F177,7060,34EE,8050,03A1,C258,8030,F200
L 1F4D0,A133,8603,6D4E,F800,F175,7903,A253,7409
L 1F4D8,F800,FF2C,7904,4A51,028C,7403,4A51,0514
L 1F4E0,4105,6052,6152,A220,8530,03FF,9725,ADD2
L 1F4E8,A30F,0008,70F0,34C6,FFFF,FFFF,804F,0000
L 1F4F0,70F0,0163
*
*
*SUBROUTINE
L 1F470,9F07,9100,F177,F101,7B3C,8120,8032,050D
L 1F478,F230,7A1B,8042,041D,F342,7517,6012,8052
L 1F480,06ED,8045,67D6,7A08,8020,F177,9052,F200
L 1F488,A300,F177,7407,8020,03A2,9052,03A3,A300
L 1F490,03A2,A200,70F0,3473,F230,78FC,B766,F163
L 1F498,70[illegible],3491,8177,7050,3491,8120,6012,A126
L 1F4A0,8052,06ED,8045,67D6,7509,8270,8120,8040
L 1F4A8,03F4,9024,03F5,A300,03F4,A260,70F0,3497
L 1F4B0,8F07,7FF0
*
**************************************************************************
***************************************************************************
*          TEST PATCH 36                          06/25/90
*
* R05M38 (A271 INST., B86B CONST.)
```

```
* INCREASE UNCERTAINTY TIME FOR START OF MANEUVER FROM 1 SEC.(50
SI.)
* TO 3 SEC.(147 SI.) TO PREVENT LOSS OF TRACK DUE TO HIGH G MANEUVER
*
* LOCATION A289(018) FROM 0032(50) TO 0093(147)
L A289,0093
* LOCATION B86D(002) FROM 4000(8 F.P.) TO 5000(10 F.P).
L B86D,5000
************************************************************************
************************************************************************
*        TEST PATCH 39                    07/03/90
*
* INITIATE MANEUVER ADAPTATION IF RANGE INNOV. >= 100 METERS AND
* ALWAYS ADD DP MATRIX IF MANEUVER DETECTED
* R07M06(171F9)
*
* 17429,2A  FROM 8603,CEF7   TO  70F0,2848  JC UN,PATCH
L 17429,70F0,2848
*
* PATCH AREA 17848 - 1F856
L 1F848,F840,6300,7B05,8603,CEF7,70F0,142B,8060
L 1F850,DA18,4A64,0045,50D6,1643,70F0,14BA
*
* 0C300  NEW CONSTANT [10,000]  4E20,000E
L 0C300,4E20,000E
*
* 1768E  FROM 9100  TO  9110   STC 1,R07VVB'TRK'DP'FLG
L 1768E,9110
************************************************************************
************************************************************************
*        TEST PATCH T39A                  07/09/90
*
* ALLOW DED. TRACK FOR MANEUVER EVERY FRAME
* R07M06(171F9)
*
* 174C3(2CA)  FROM 7905   TO  7405  BR $+5
L 174C3,7405
*
* 174C9(2D0)  FROM 01EA(490 S.I.) TO 00C4(196 S.I.) 4 SECONDS
L 174C9,00C4
************************************************************************
*        TEST PATCH T32A                  08/07/90
*                                    08/15/90
* IF MANUEVER DETECTED AND TRACK PRIORITY <> 1 PREVENT CREDIBILITY
STATUS
* CHANGE
* R07M06(171F9)
*
```

```
* 174BA,B(2C1,2) FROM 85C0,5006   TO  JC UN,1F6A3
L 174BA,70F0,26A3
*
* PATCH AREA (1F6A3-1F6B1)
L 1F6A3,8060,DA18,4A64,0045,8026,1624,F220,7504
L 1F6AB,8320,9026,163B,85C0,5006,70F0,14BC
******************************************************************
*        TEST PATCH T32B                         08/08/90
*
* BYPASS MANUEVER DEDICATED TRACK REQUEST FOR TRACK PRIORITIES
>= 4
* R07M06(171F9)
*
* 174D1,2(2D8,9)  FROM F234,7567 (CISP R3,5 , BEZ LB 0340)
*            TO  F233,7B67 (CISP R3,4 , BGE LB 0340)
L 174D1,F233,7B67
******************************************************************
*        TEST PATCH T32C                         08/15/90
*
* IF RANGE * /BEARING INNOV/ (IN RADIANS) 1S >= 800 METERS
* DECLARE A MANUEVER TO PREVENT CREDIBILITY STATUS CHANGE ON
NON CREDS
* R07M06 (171F9)
*
* CHANGE 17419,1A,1B FROM C922,962F,002B
L 17419,8762,70F0,1EB0
*
* PATCH AREA (17EB0 - 17EBF)
L 17EB0,8050,DA18,4A54,0045,C865,1604,C966
L 17EB7,F860,6302,7060,14BA,C922,962F,002B
L 17EBE,70F0,141C
* NEW FLOATING POINT CONSTANT 800 METERS SQUARE @ C302,3
L C302,4E1F,FB14
*
***********************************************************************
*        TEST PATCH T40                          08/17/90
*
* REDUCE POSSIBILTY OF GHOSTING
* R05M11(8136)
*
* 814A(014)  FROM B122  TO  LISP R2,2 RESET LR SEARCH WAVEFORM INDEX TO
2
L 814A,8221
*
* R00C50(CD90)
* REVISE R05T29 LR SEARCH WAVEFORM TABLE FOR PRT1
* PRT1 SEQUENCE STARTING AT TABLE POSITION 2 CHANGED TO:
* 998,1020,998,1020,998,1020,987,1009,1031,1009,1031,1009,1031
```

```
L CE70,03E6,0405,03FC,0002,03E6,0104,03FC,0305
L CE78,03E6,0004,03FC,0103,03DB,0205,03F1,0003
L CE80,0407,0105,03F1,0204,0407,0005,03F1,0102
L CE88,0407,0304
*
* R05M48(A908)
* CHANGE MIN VALUE OF PRT2 FROM 1017 T0 1042
L A9F3,0412
L A9F6,0412
L AA51,0412
L AA73,041C
*
* R07M06(171F9)
* ALLOW DEDICATED EVERY FRAME FOR A MISSED REPORT
* 1769A(04A1) FROM 01EA(490 SI) TO 00C4(196 SI)
L 1769A,00C4
*************************************************************************
*         TEST PATCH T40A                    08/20/90
*
* CHANGE CREDIBLE TARGET (PRI. 1) DROP TRACK THRESHOLD FROM -3 TO -5
* MODIFY T32 PATCH
* R07M14(17C95)
* 17D1A(+85) FROM 8332 TO 8334 LISN R3,5
L 17D1A,8334
*
* ALLOW DED. TRACK DUE TO MISS ONLY EVERY OTHER FRAME
* REMOVE PART OF T40 PATCH
* R07M06(171F9)
* 1769A(04A1) FROM 00C4(196 SI) TO 01EA(490 SI)
L 1769A,01EA
*************************************************************************
*************************************************************************
* THE FOLLOWING ARE PROGRAM EXECUTION INDICATORS:
CA1=2B188
CA2=6E8C
AC1 BAC ON
AC2 MACRO ON
HLT ON
SRA ON
L 1,35AF
BEEP F02PAF.CMD LOADED
```

APPENDIX B

BASELINE MISSION SOFTWARE PPI PLOTS

During a 20-hour period on August 14 and August 15, 1990, the following PPI plots and scan history graphs were collected with the baseline mission software. The velocity threshold was set at 60 knots.

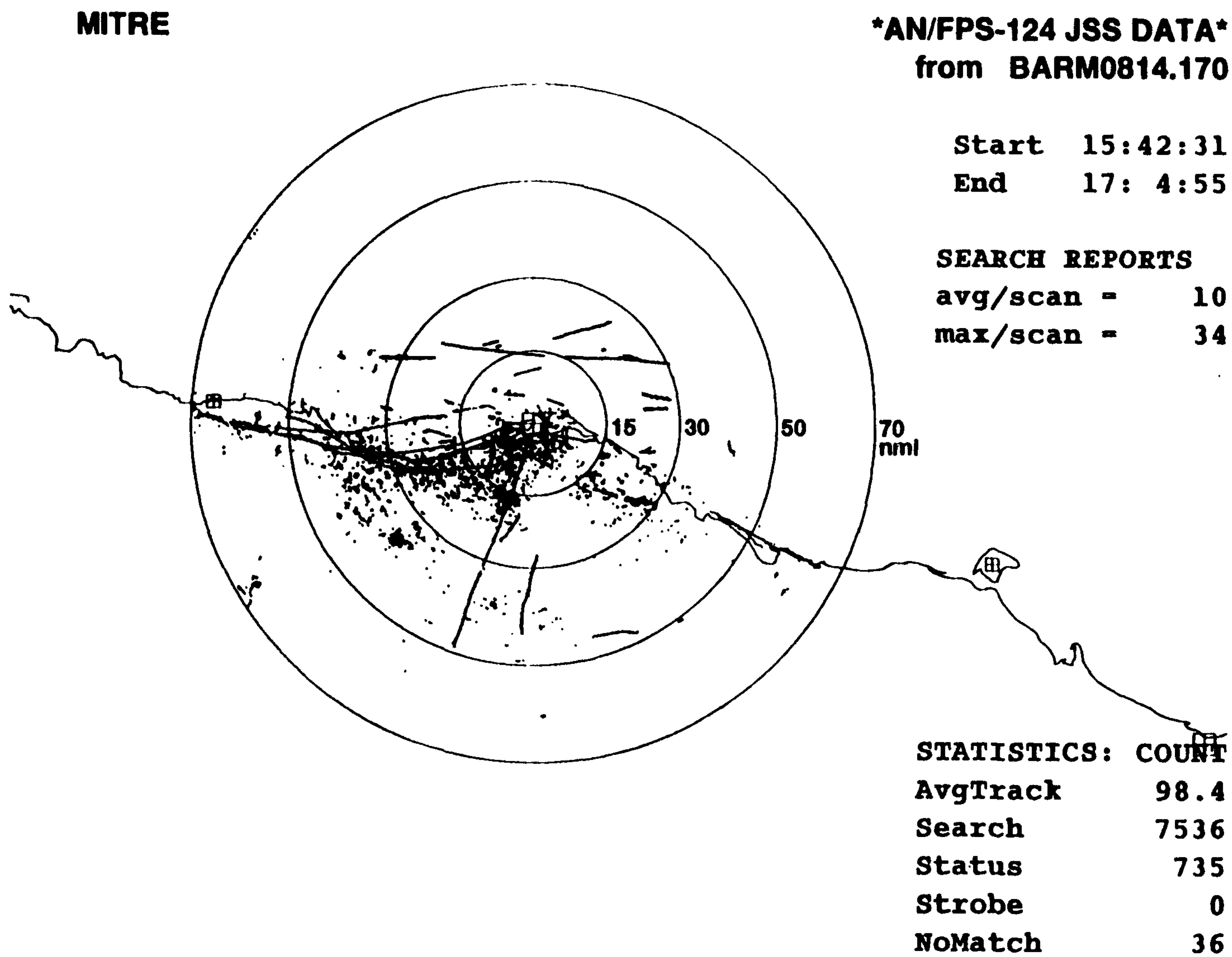


Figure B-1. AN/FPS-124 JSS Data PPI Plot, BARM0814.170

BARM0814.170
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	10.2	98.4
Max/Scan=	34	161

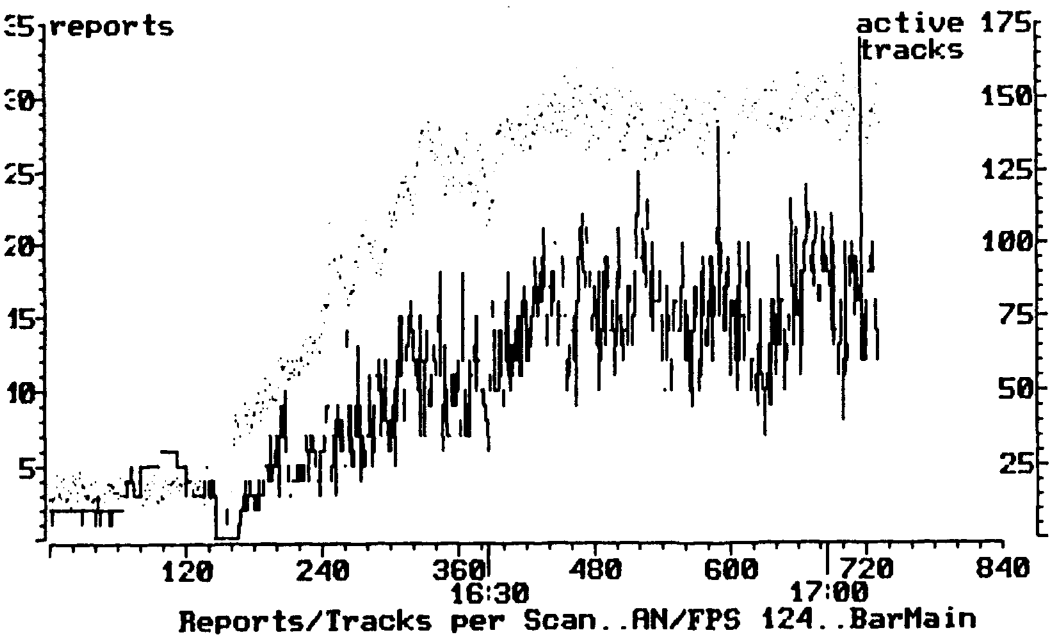


Figure B-2. AN/FPS-124 JSS Data Output Summary, BARM0814.170

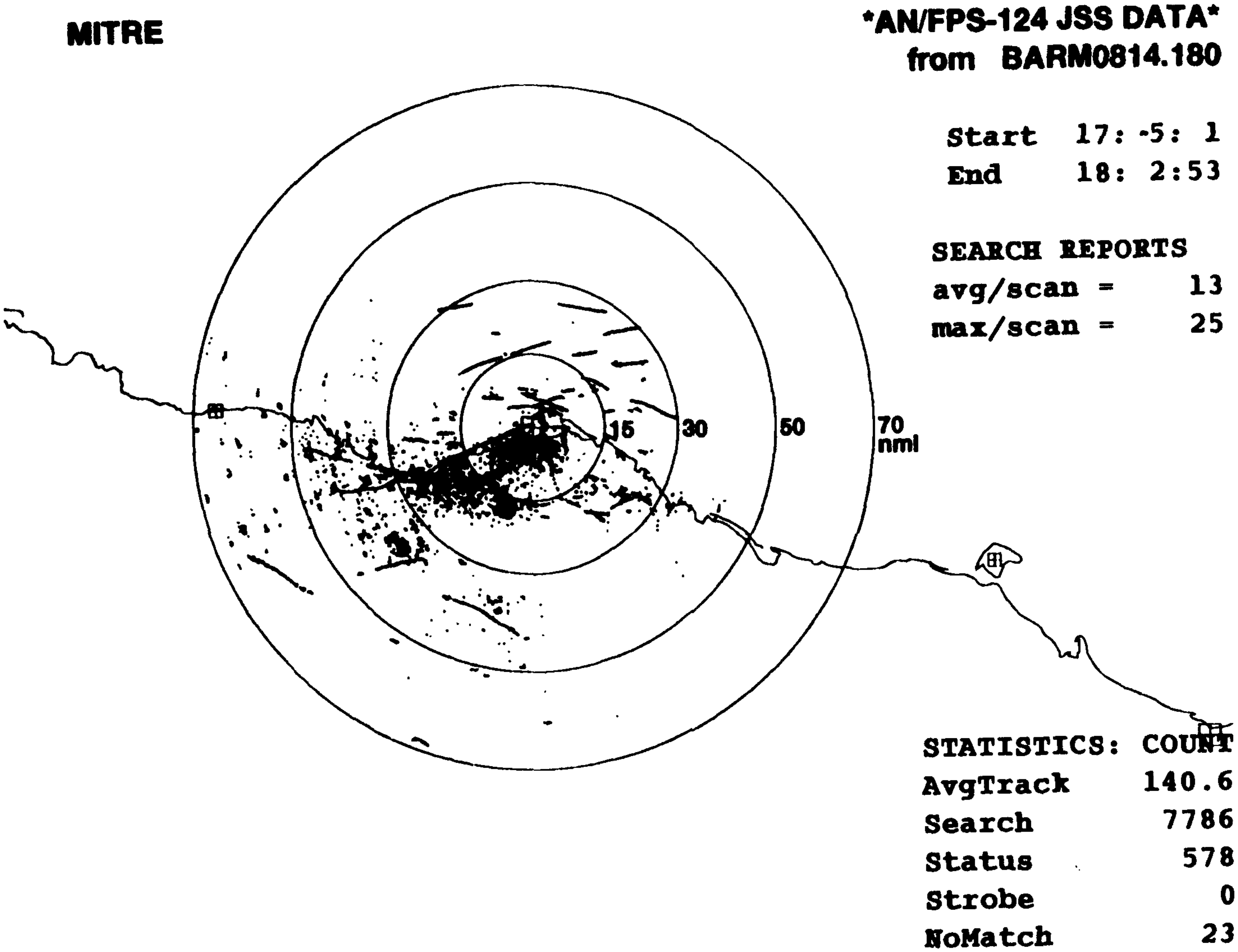


Figure B-3. AN/FPS-124 JSS Data PPI Plot, BARM0814.180

BARM0814.180
Output Summary:

	..Reports	....Tracks..
Avg/Scan=	13.4	140.6
Max/Scan=	25	164

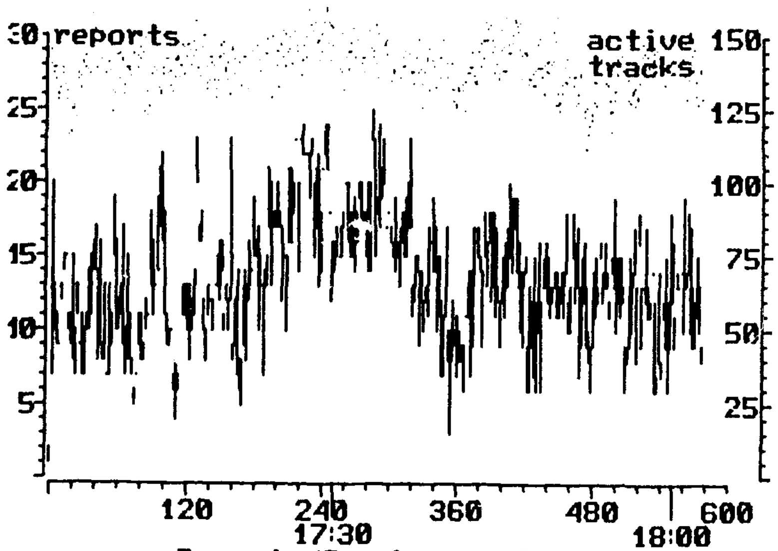


Figure B-4. AN/FPS-124 JSS Data Output Summary, BARM0814.180

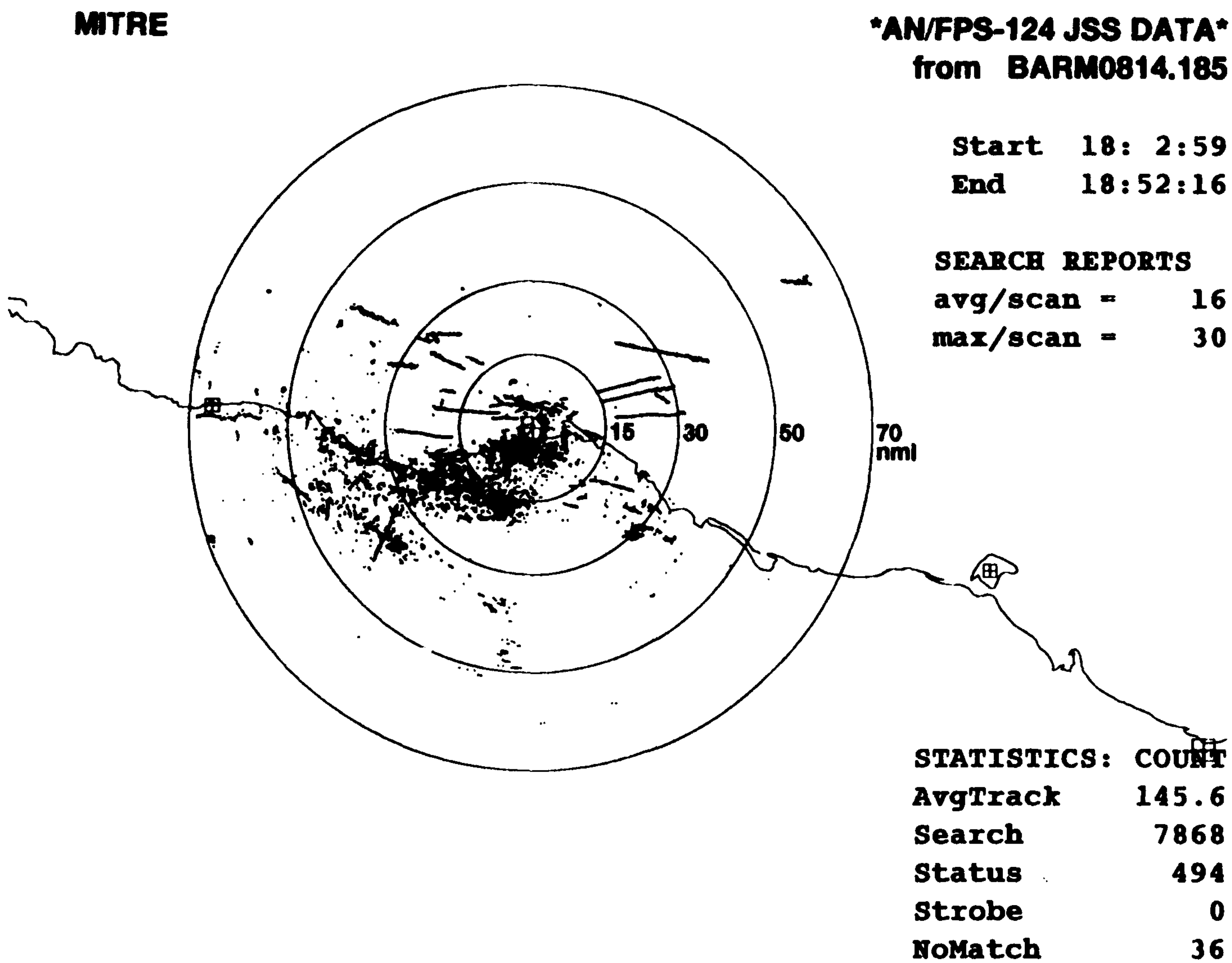


Figure B-5. AN/FPS-124 JSS Data PPI Plot, BARM0814.185

BARM0814.185
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	15.9	145.6
Max/Scan=	30	168

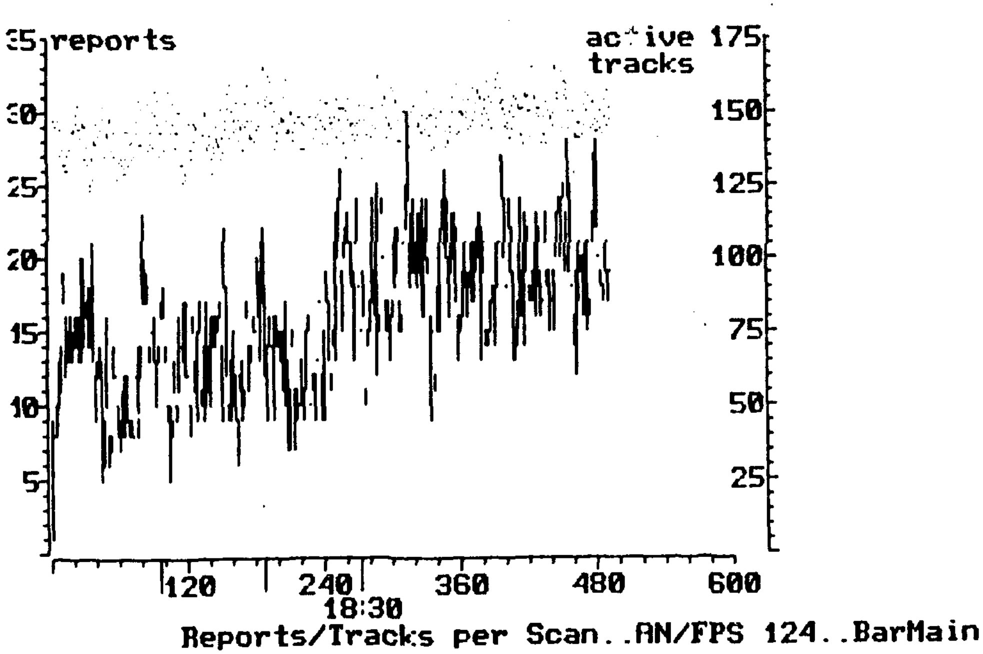


Figure B-6. AN/FPS-124 JSS Data Output Summary, BARM0814.185

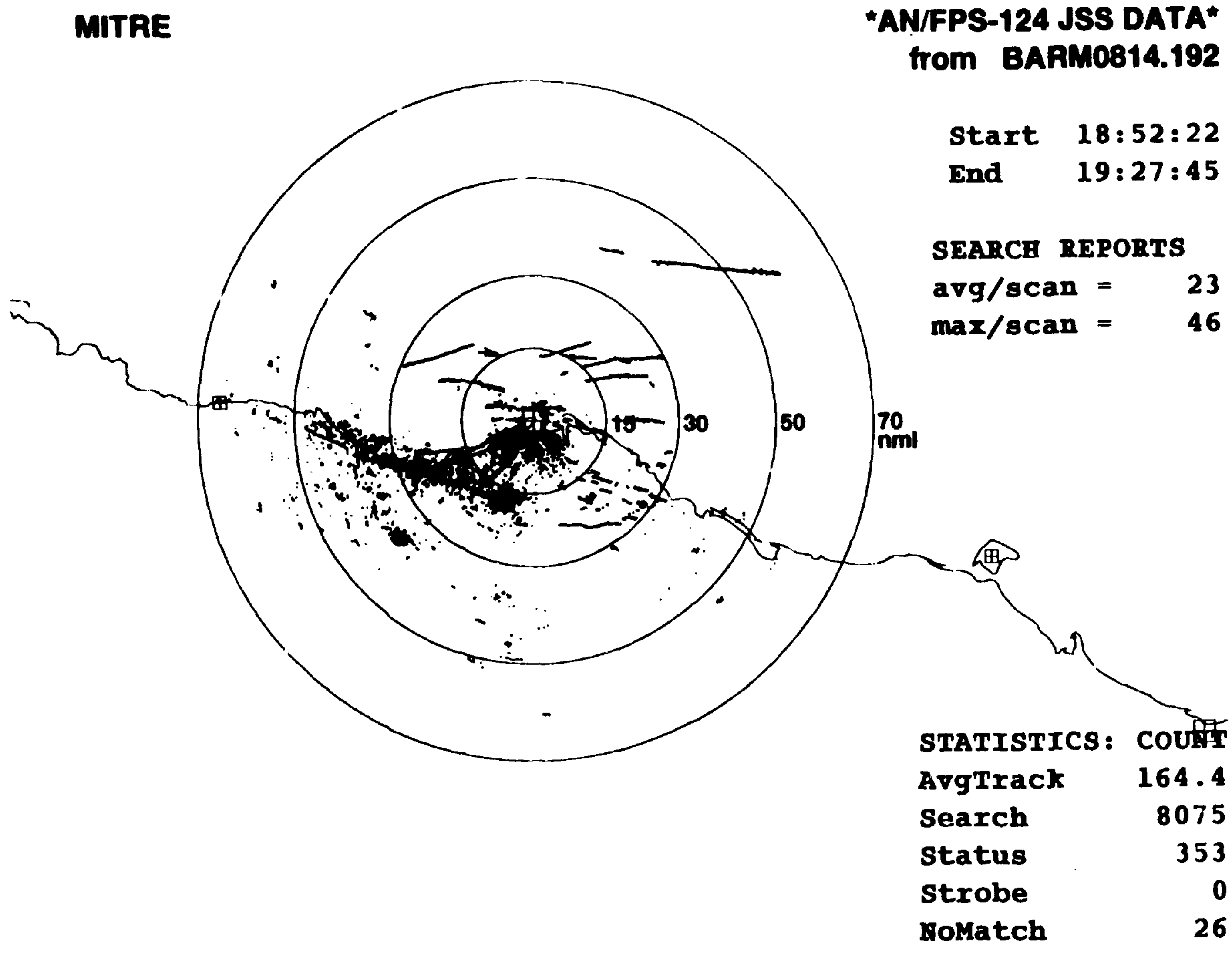


Figure B-7. AN/FPS-124 JSS Data PPI Plot, BARM0814.192

BARM0814.192
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	22.8	164.4
Max/Scan=	46	188

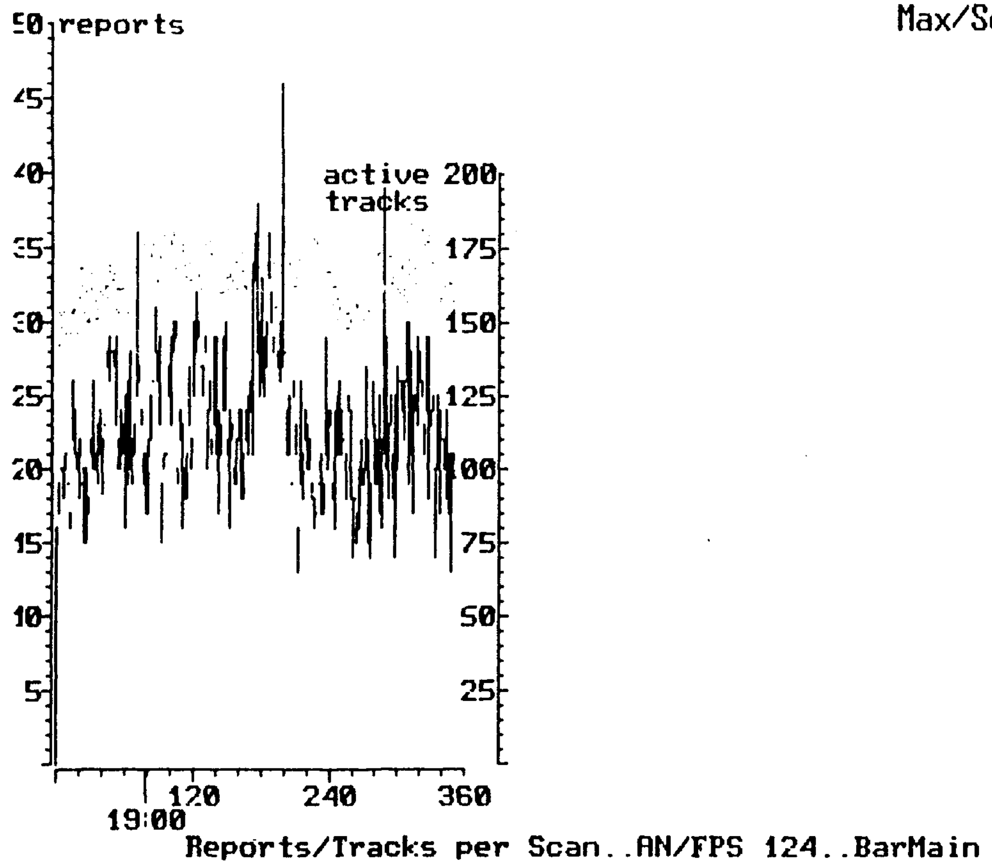


Figure B-8. AN/FPS-124 JSS Data Output Summary, BARM0814.192

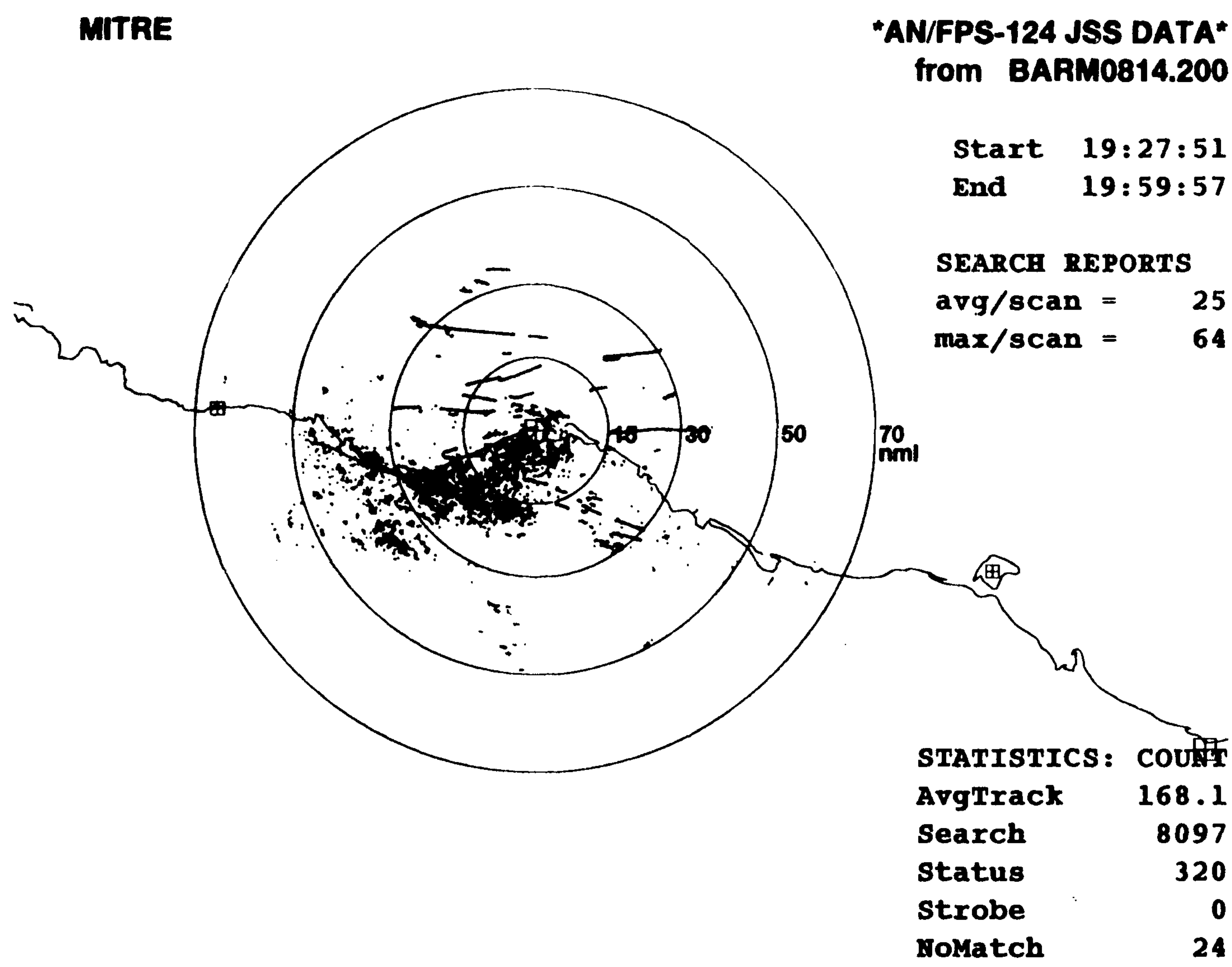


Figure B-9. AN/FPS-124 JSS Data PPI Plot, BARM0814.200

BARM0814.200
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	25.3	168.1
Max/Scan=	64	193

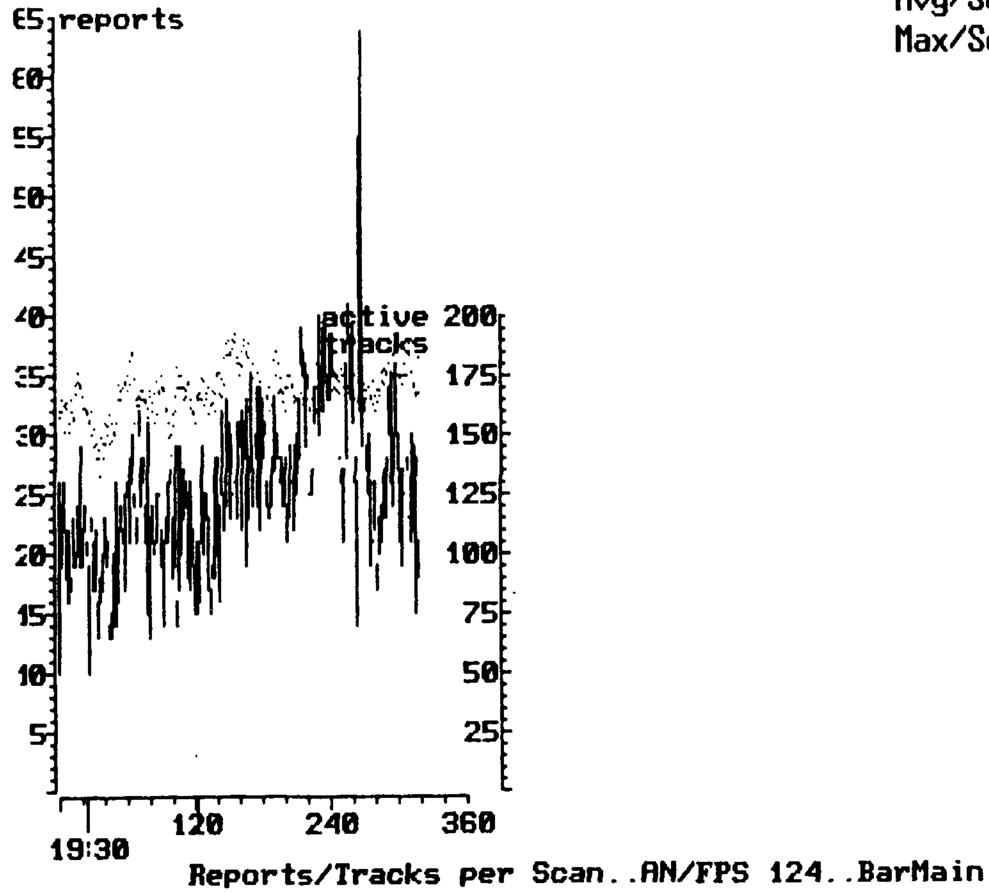


Figure B-10. AN/FPS-124 JSS Data Output Summary, BARM0814.200

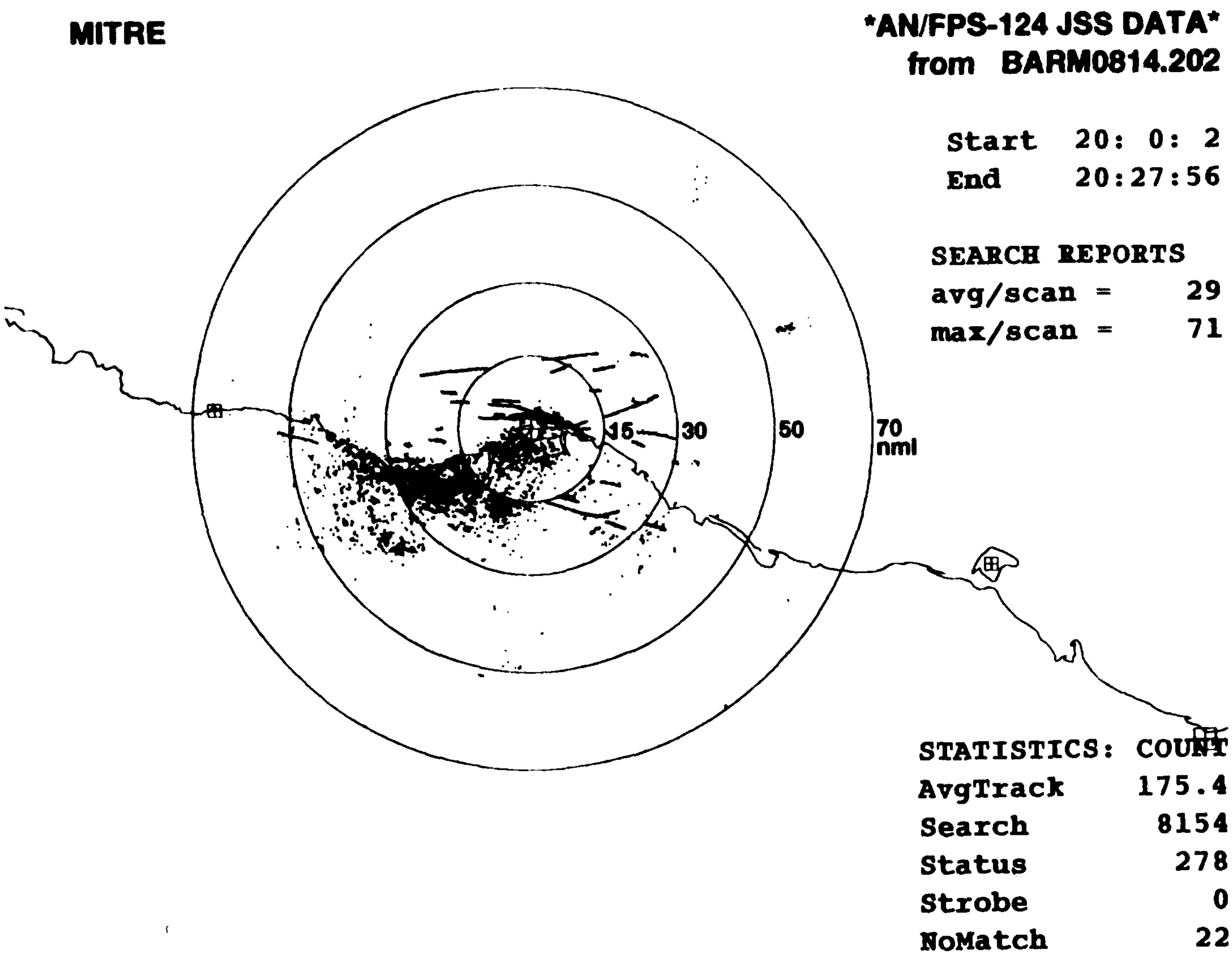
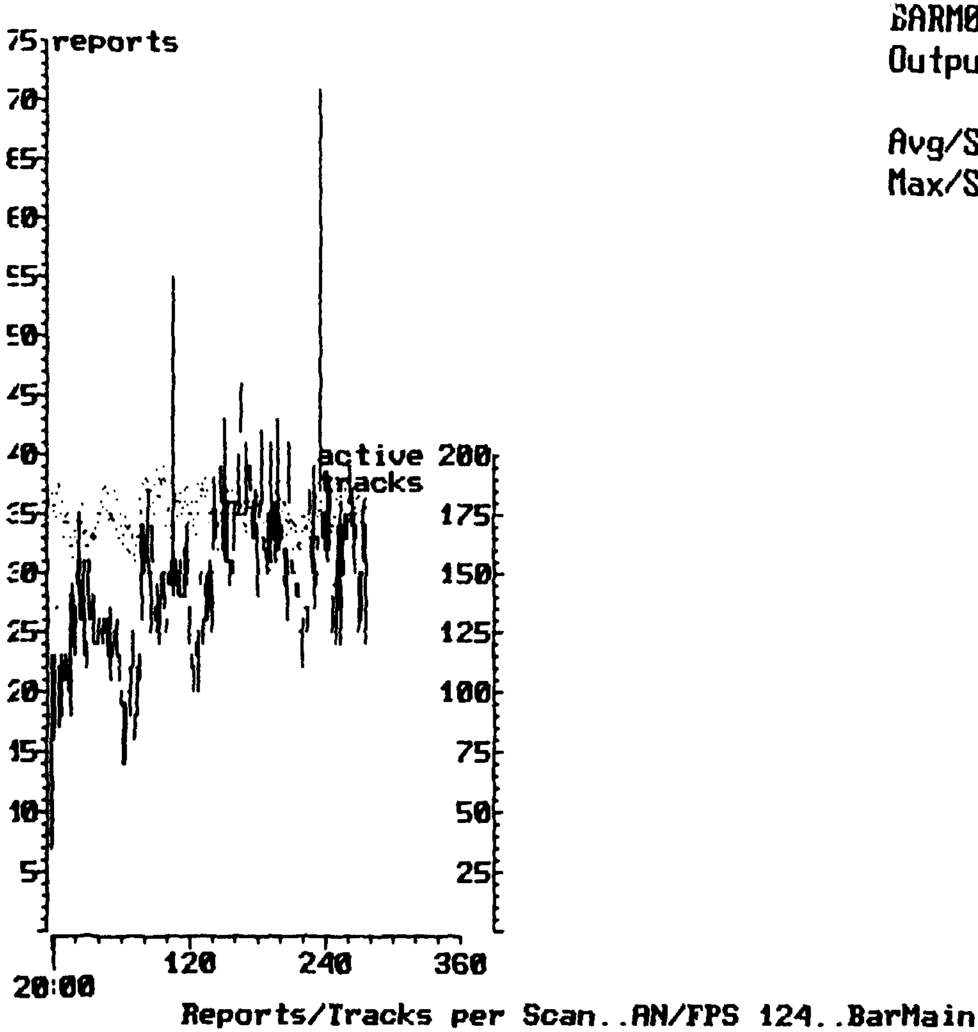


Figure B-11. AN/FPS-124 JSS Data PPI Plot, BARM0814.202



BARM0814.202
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	29.3	175.4
Max/Scan=	71	196

Figure B-12. AN/FPS-124 JSS Data Output Summary, BARM0814.202

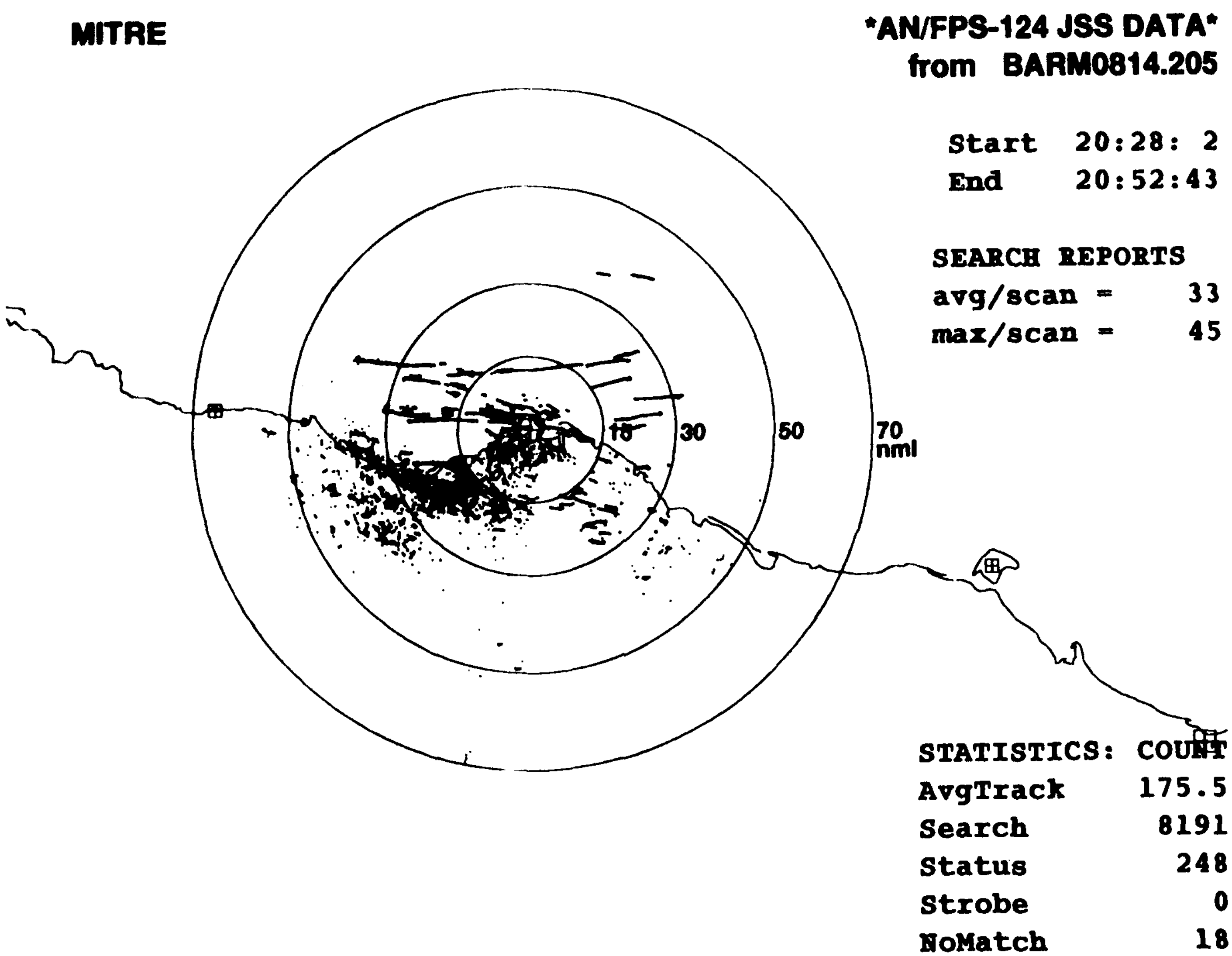
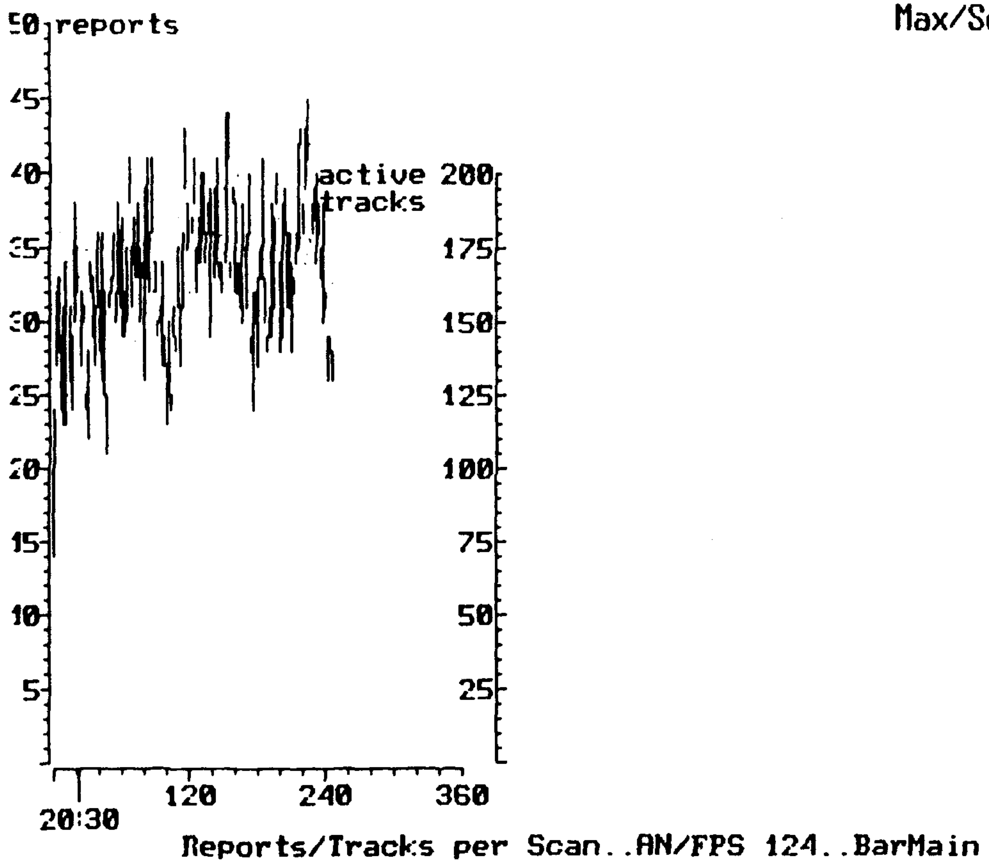


Figure B-13. AN/FPS-124 JSS Data PPI Plot, BARM0814.205



BARM0814.205
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	33.0	175.5
Max/Scan=	45	200

Figure B-14. AN/FPS-124 JSS Data Output Summary, BARM0814.205

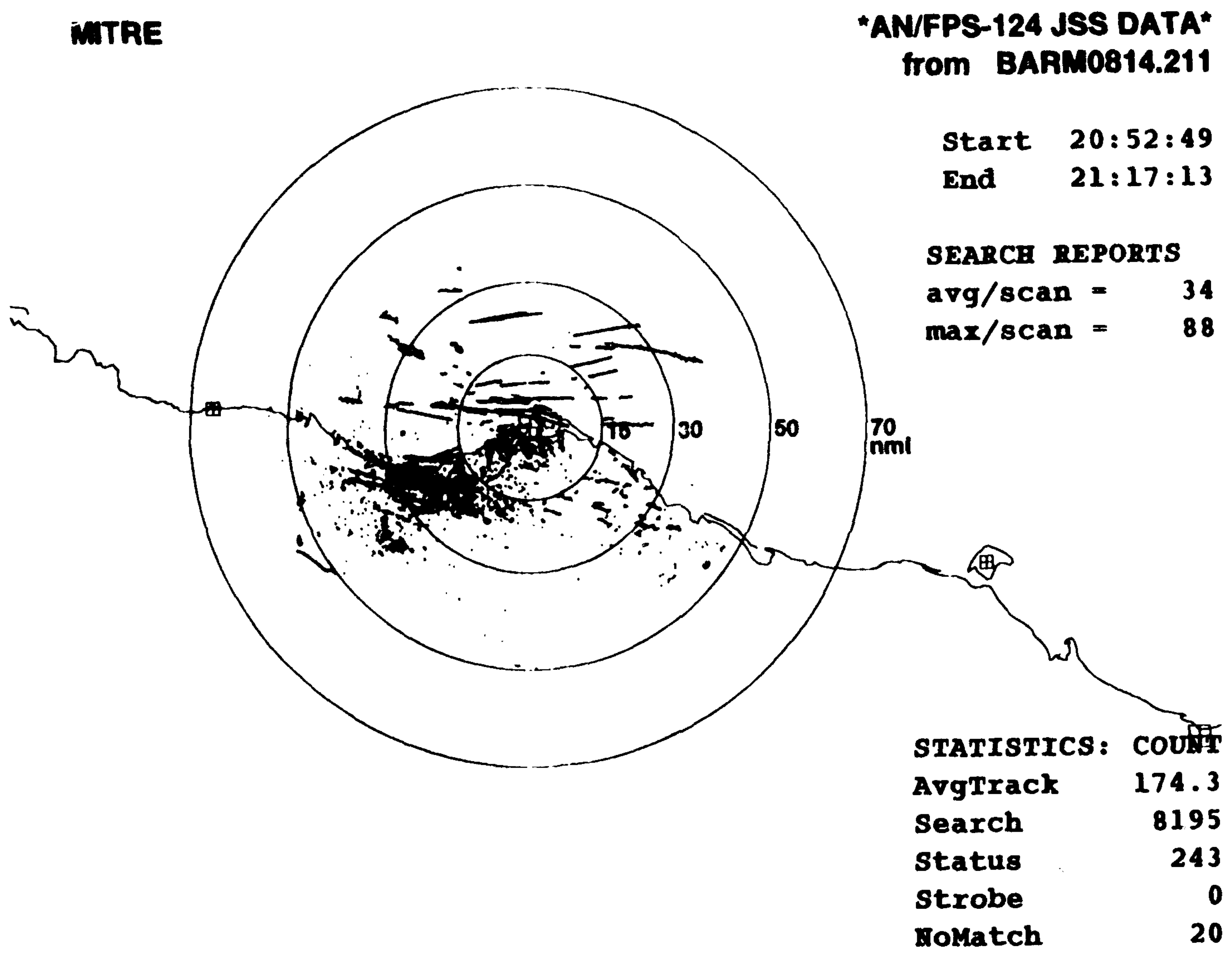


Figure B-15. AN/FPS-124 JSS Data PPI Plot, BARM0814.211

BARM0814.211
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	33.7	174.3
Max/Scan=	88	199

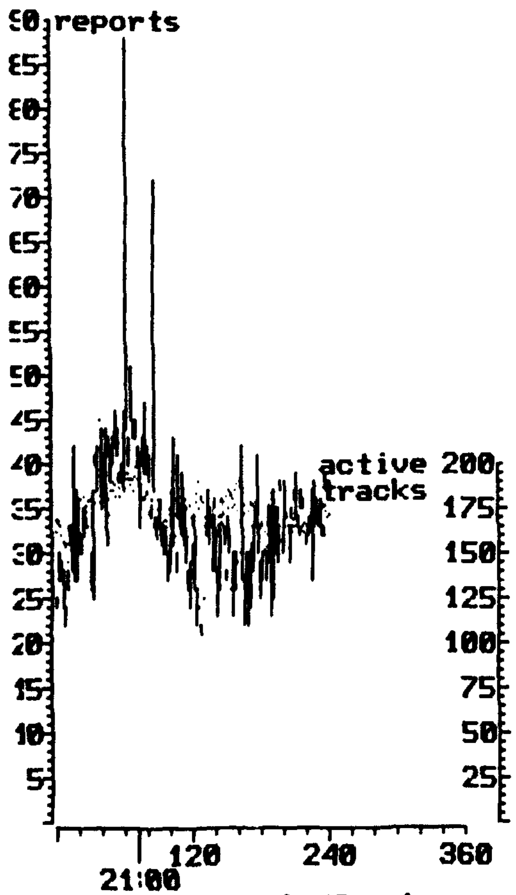


Figure B-16. AN/FPS-124 JSS Data Output Summary, BARM0814.211

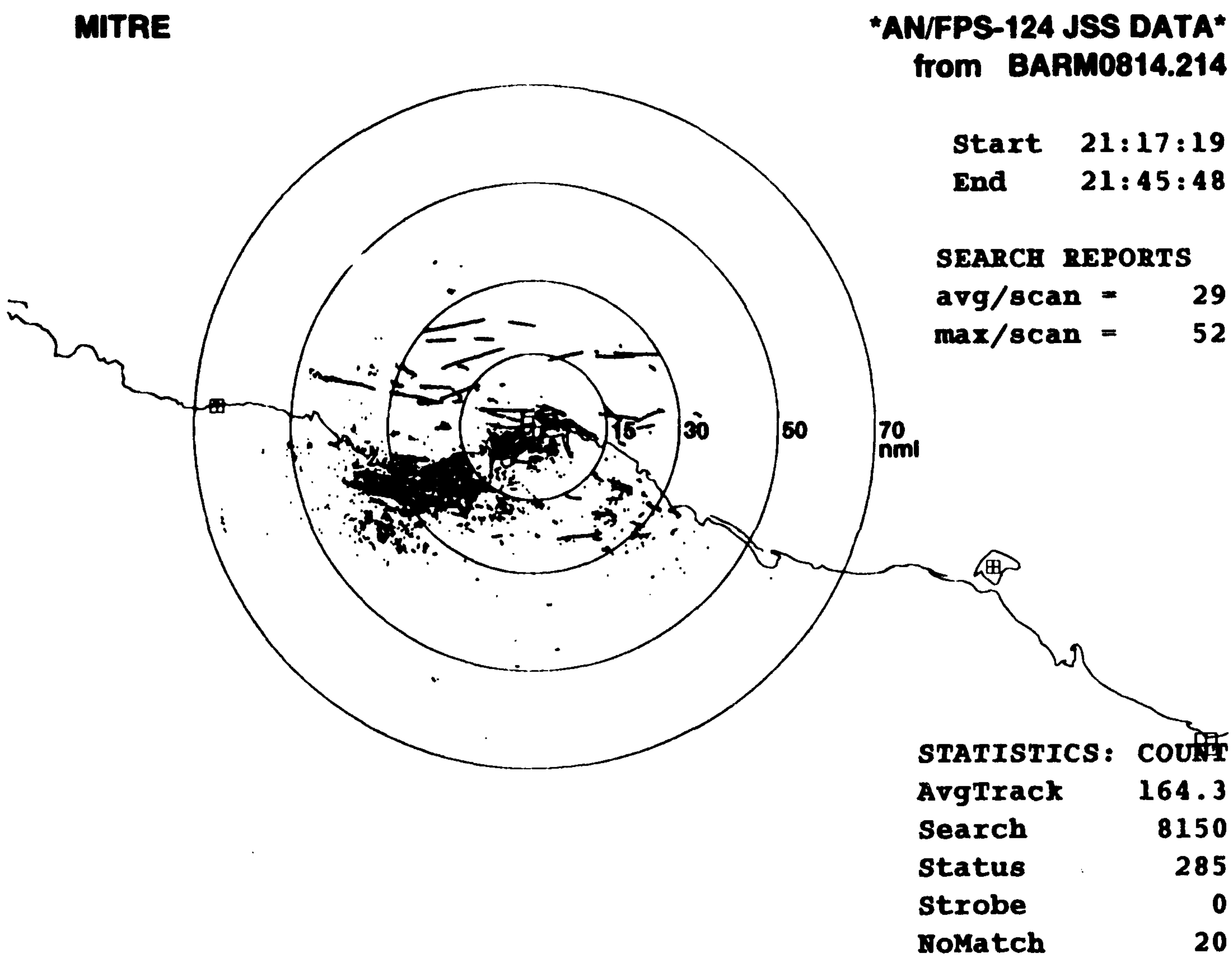
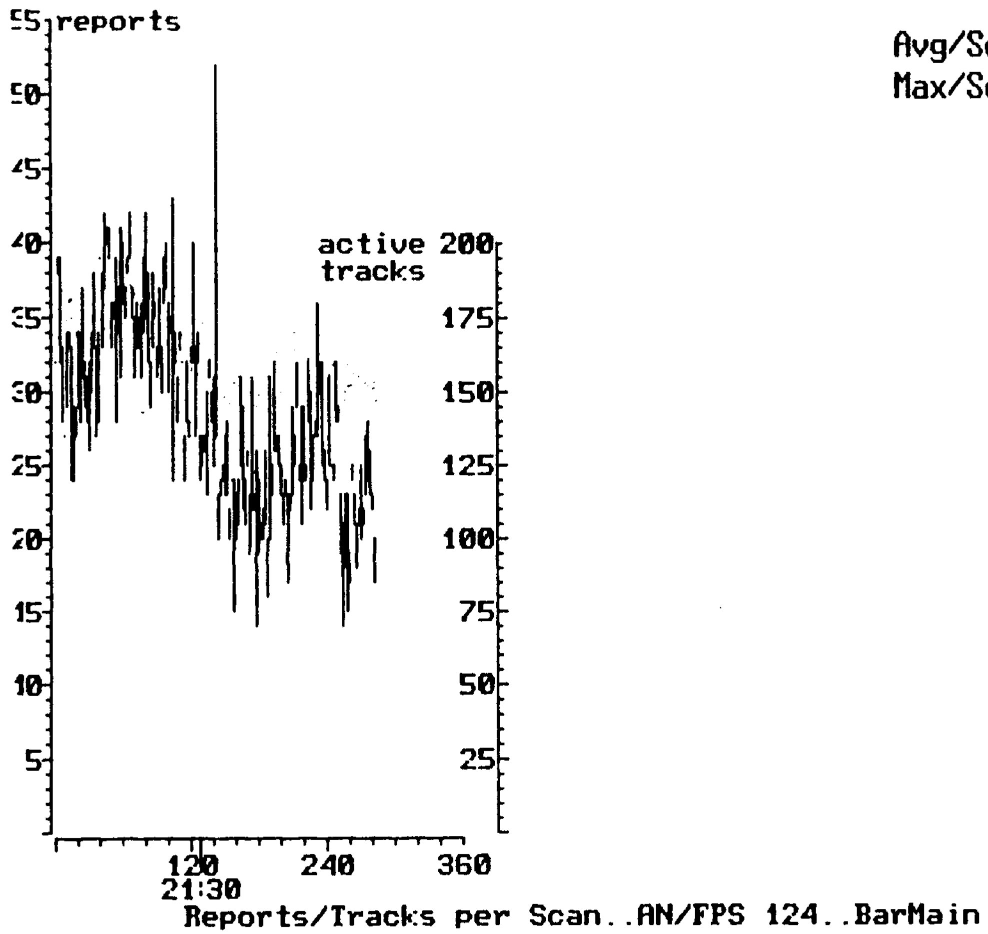


Figure B-17. AN/FPS-124 JSS Data PPI Plot, BARM0814.214



BARM0814.214

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	28.5	164.3
Max/Scan=	52	196

Figure B-18. AN/FPS-124 JSS Data Output Summary, BARM0814.214

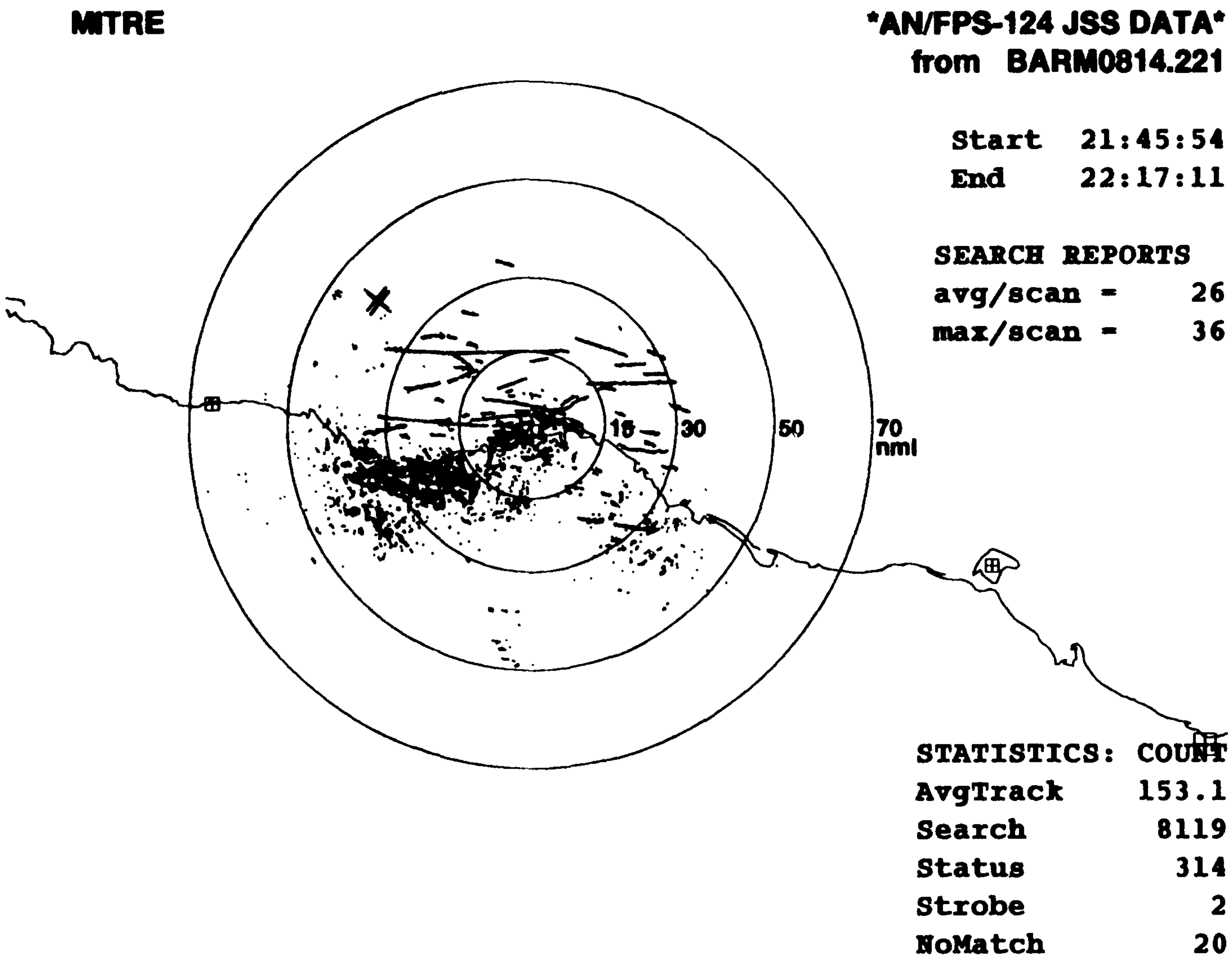


Figure B-19. AN/FPS-124 JSS Data PPI Plot, BARM0814.221

BARM0814.221

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	25.9	153.1
Max/Scan=	36	172

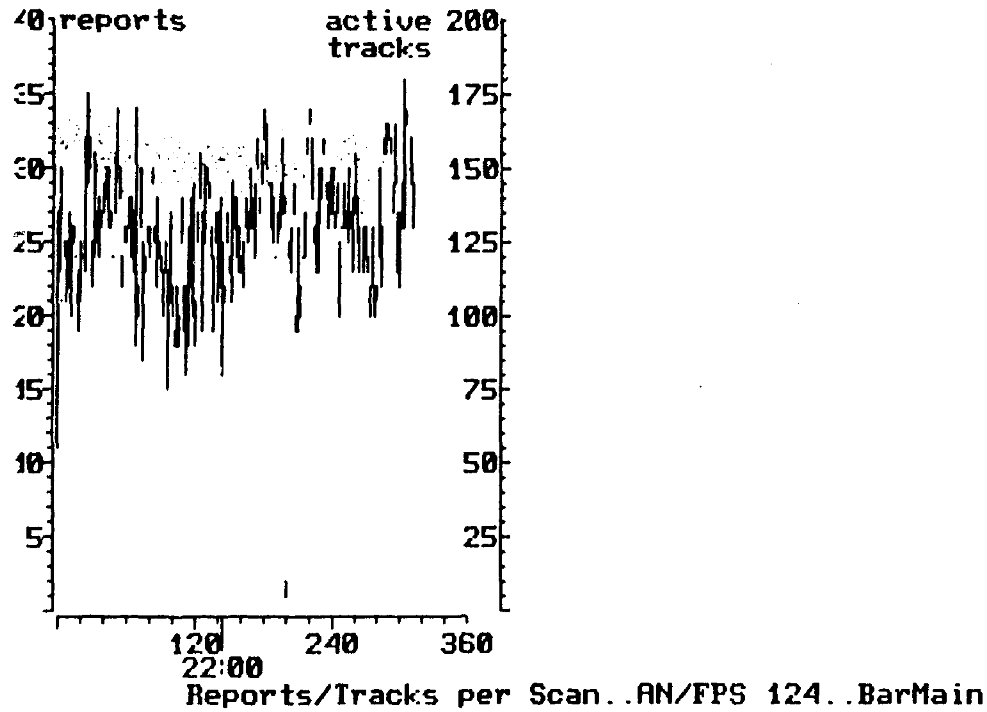


Figure B-20. AN/FPS-124 JSS Data Output Summary, BARM0814.221

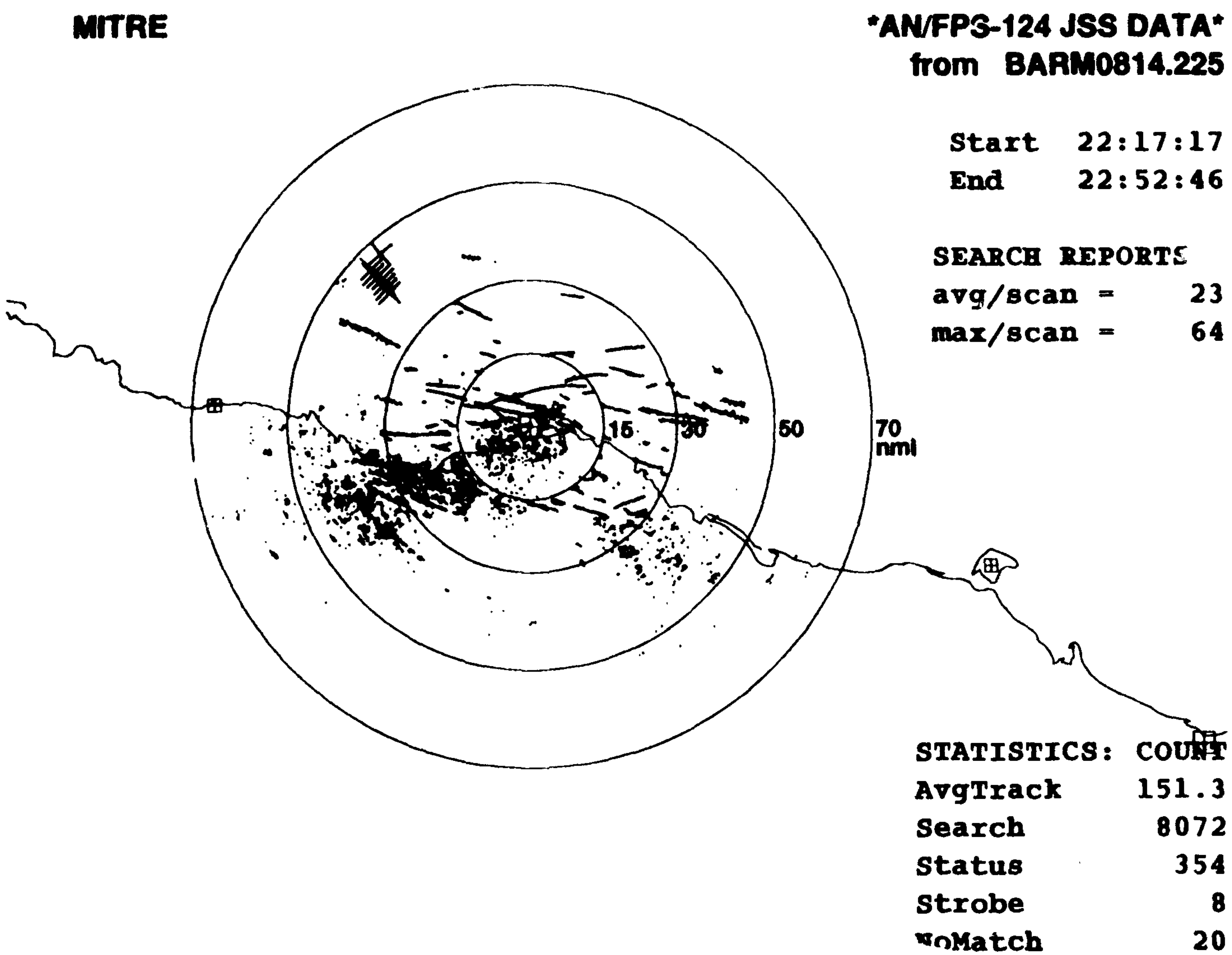


Figure B-21. AN/FPS-124 JSS Data PPI Plot, BARM0814.225

BARM0814.225
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	22.7	151.3
Max/Scan=	64	169

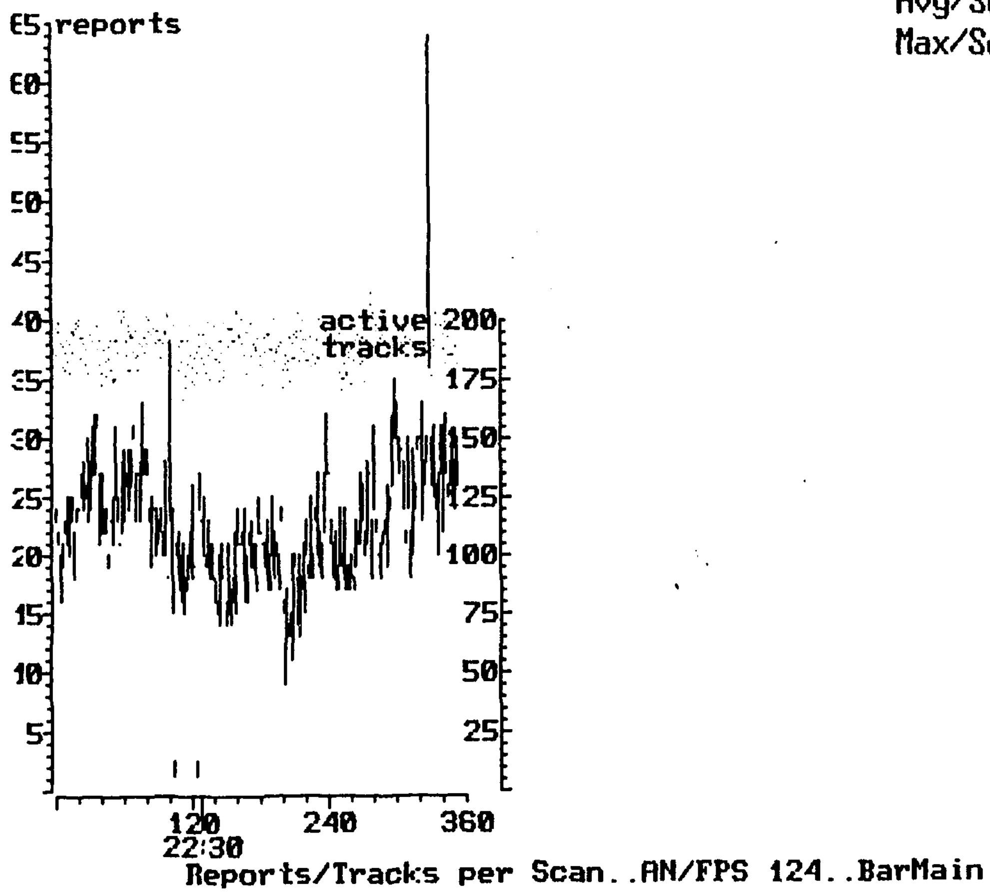


Figure B-22. AN/FPS-124 JSS Data Output Summary, BARM0814.225

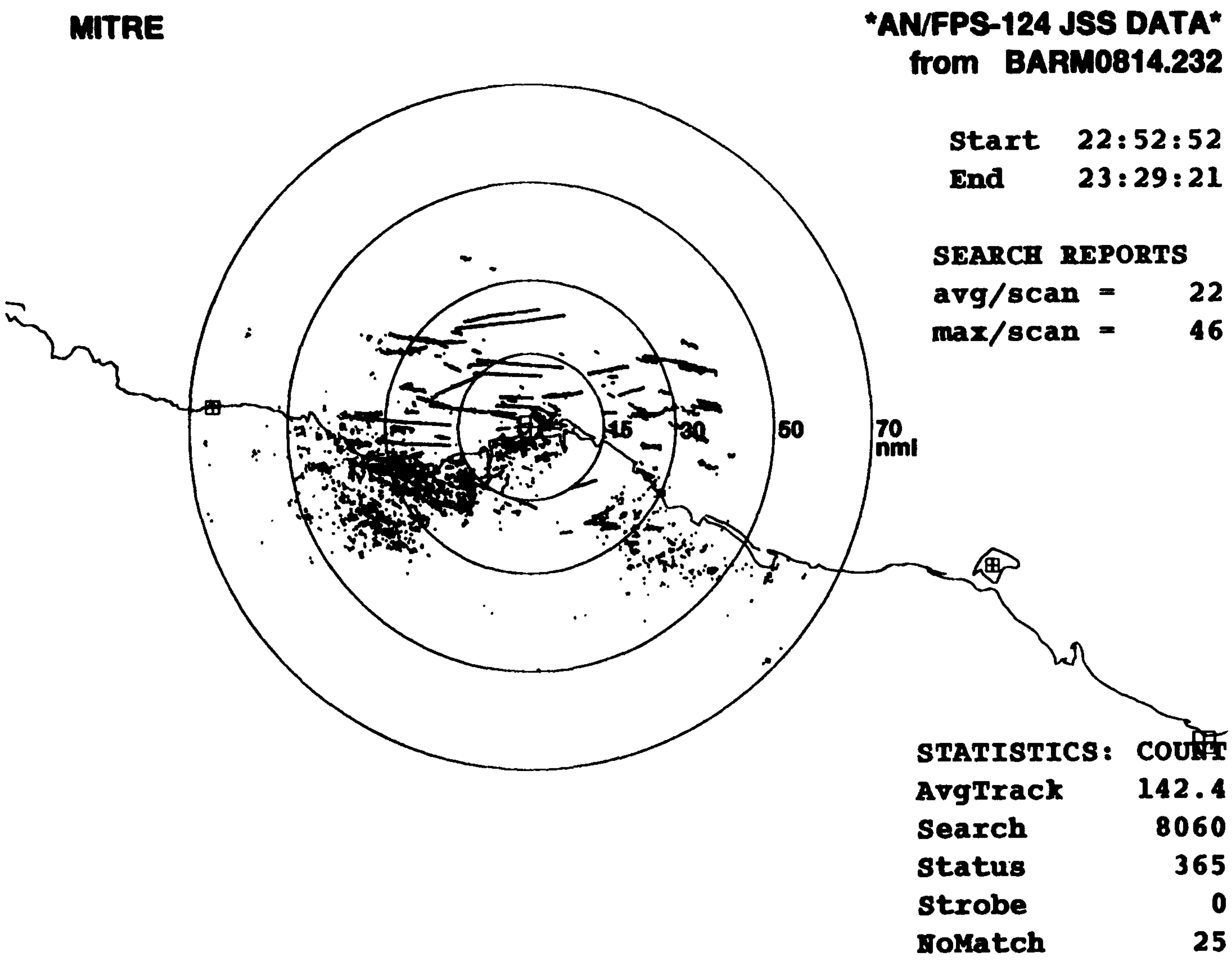


Figure B-23. AN/FPS-124 JSS Data PPI Plot, BARM0814.232

BARM0814.232
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	22.0	142.4
Max/Scan=	46	160

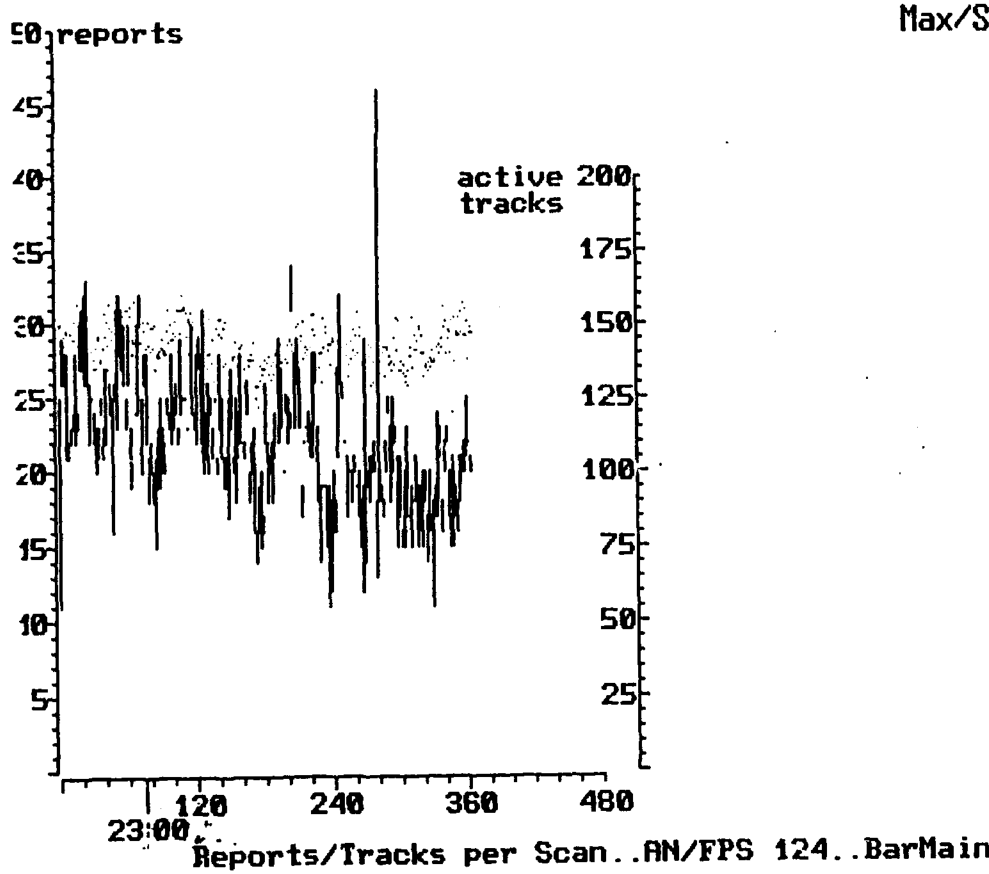


Figure B-24. AN/FPS-124 JSS Data Output Summary, BARM0814.232

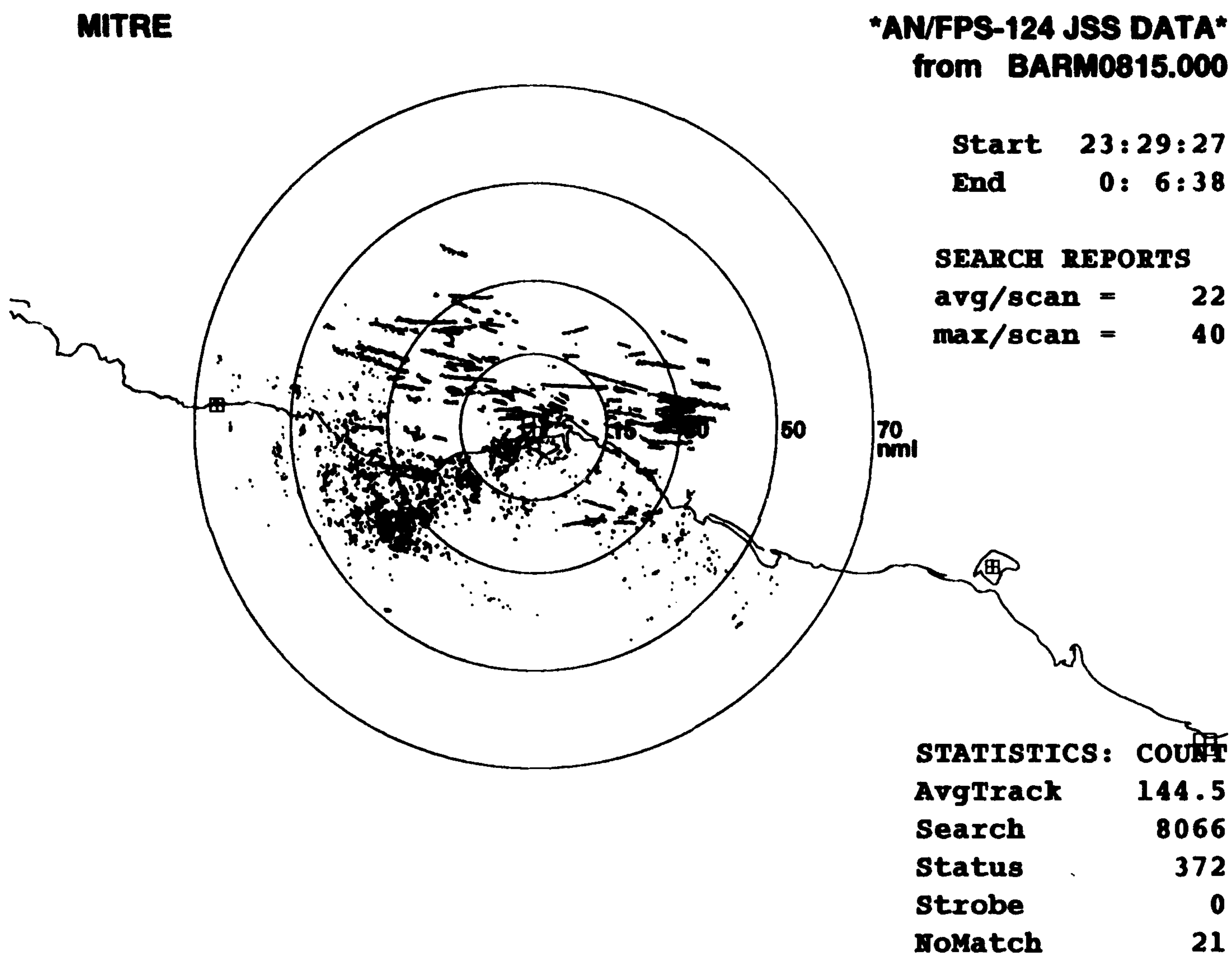


Figure B-25. AN/FPS-124 JSS Data PPI Plot, BARM0815.000

BARM0815.000

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	21.6	144.5
Max/Scan=	40	166

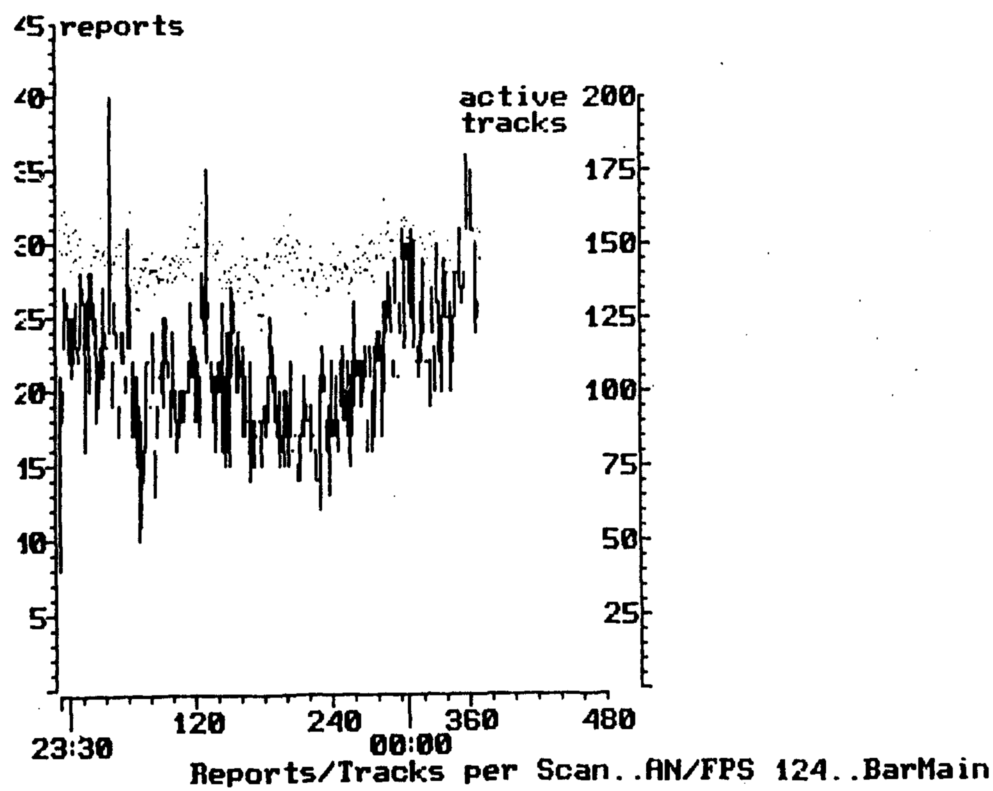


Figure B-26. AN/FPS-124 JSS Data Output Summary, BARM0815.000

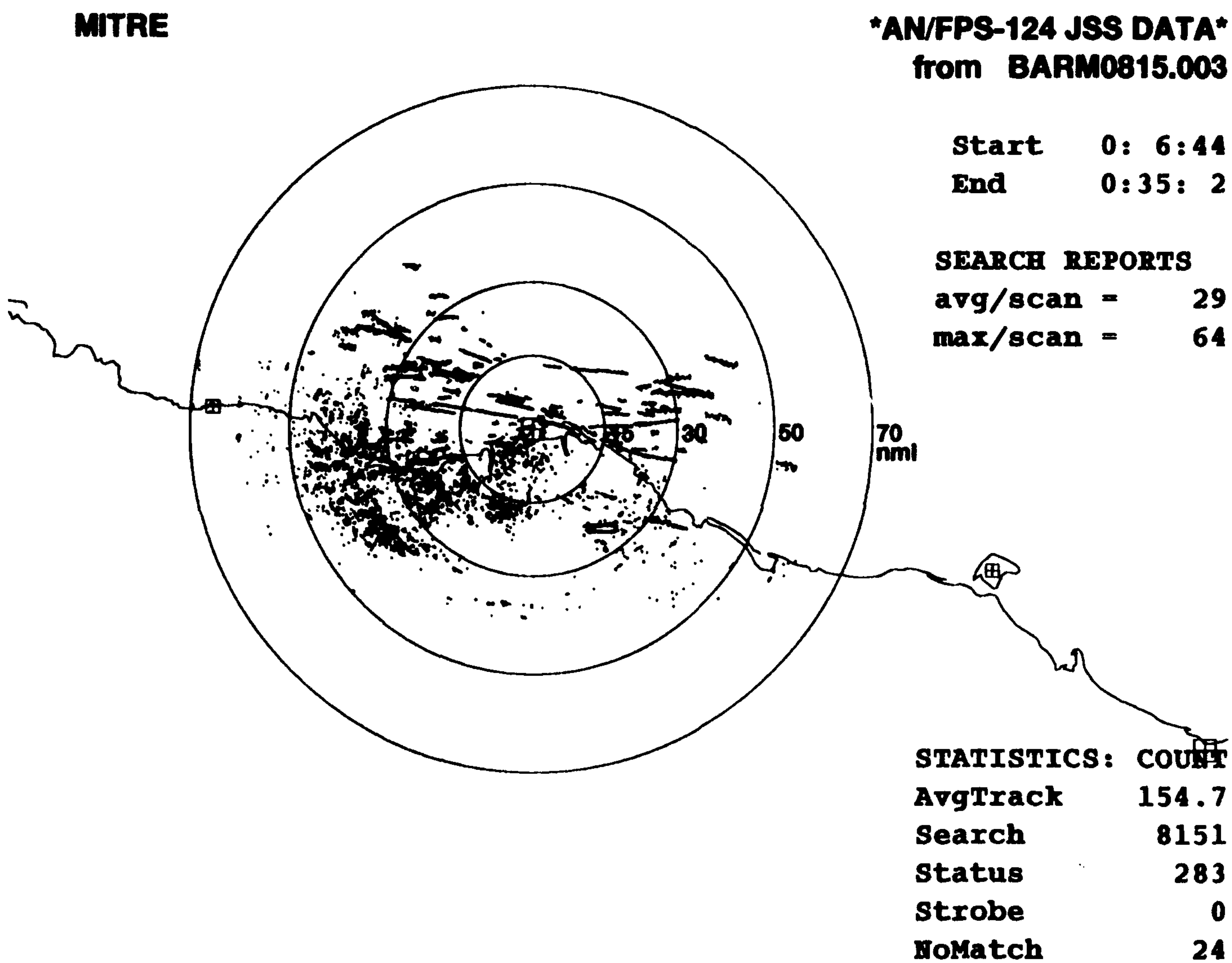


Figure B-27. AN/FPS-124 JSS Data PPI Plot, BARM0815.003

BARM0815.003
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	28.6	154.7
Max/Scan=	64	178

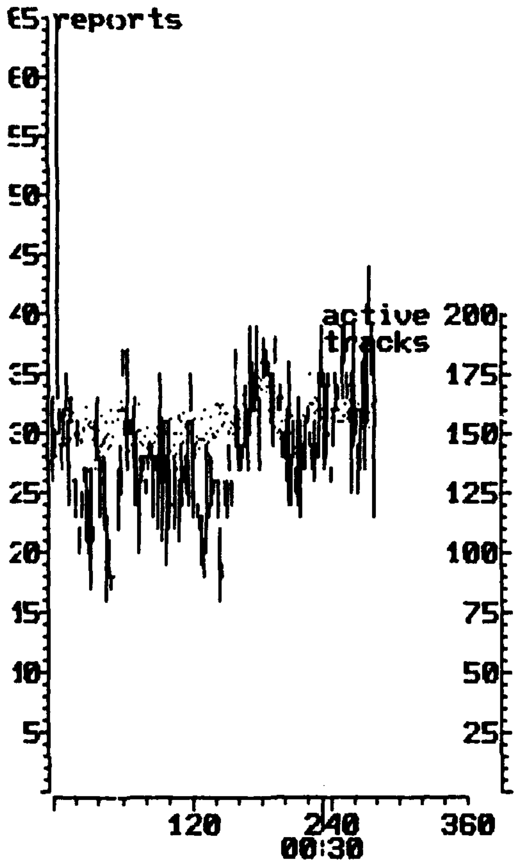


Figure B-28. AN/FPS-124 JSS Data Output Summary, BARM0815.003

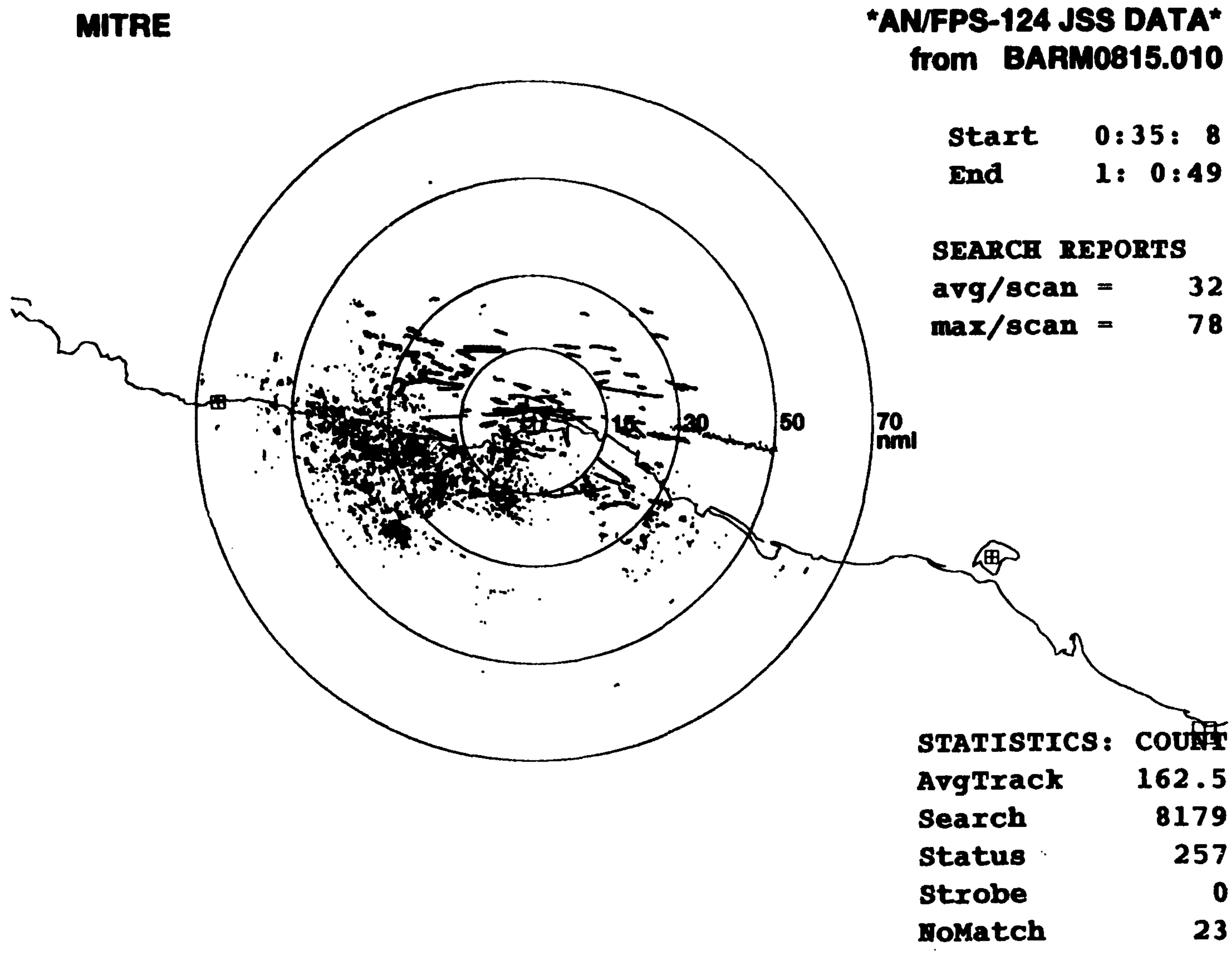


Figure B-29. AN/FPS-124 JSS Data PPI Plot, BARM0815.010

BARM0815.010

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	31.8	162.5
Max/Scan=	78	187

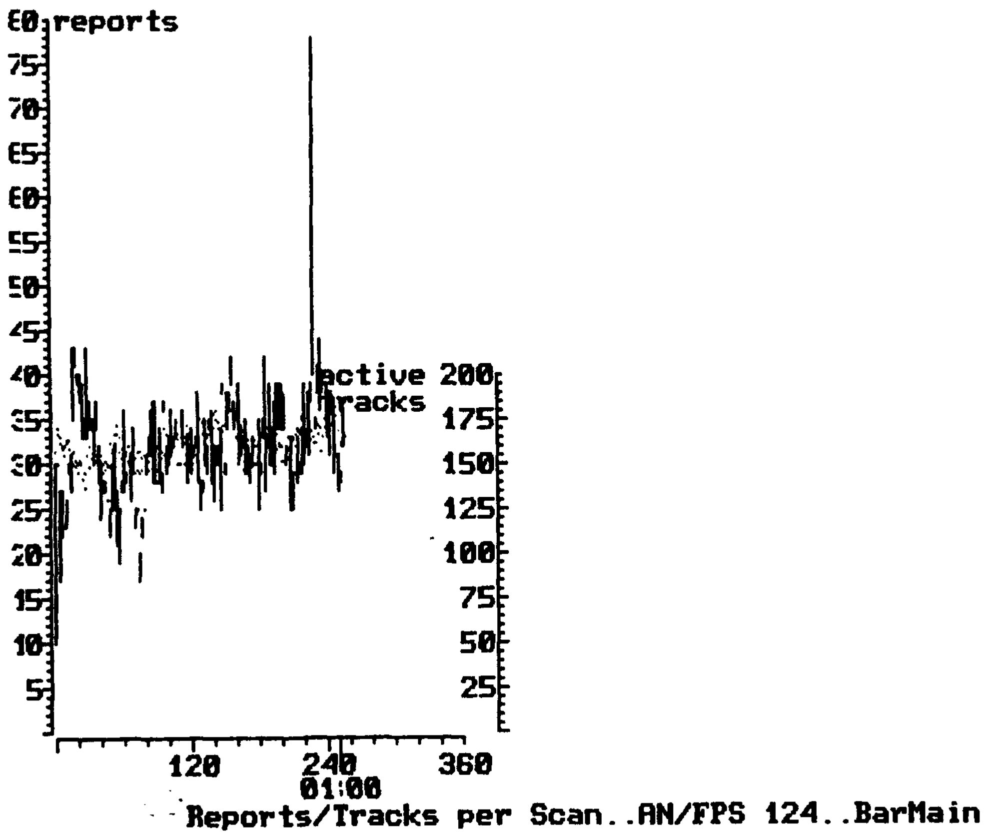


Figure B-30. AN/FPS-124 JSS Data Output Summary, BARM0815.010

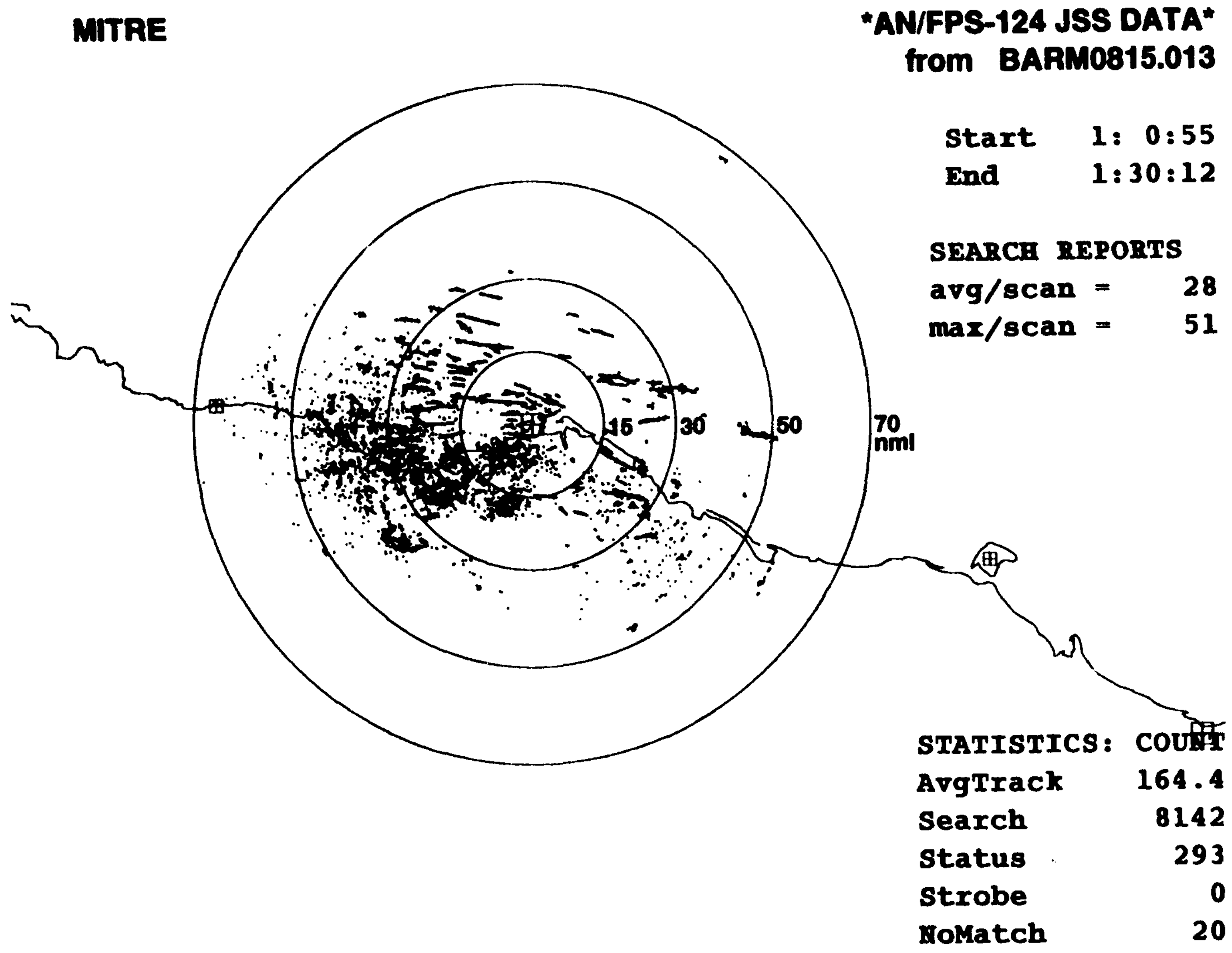
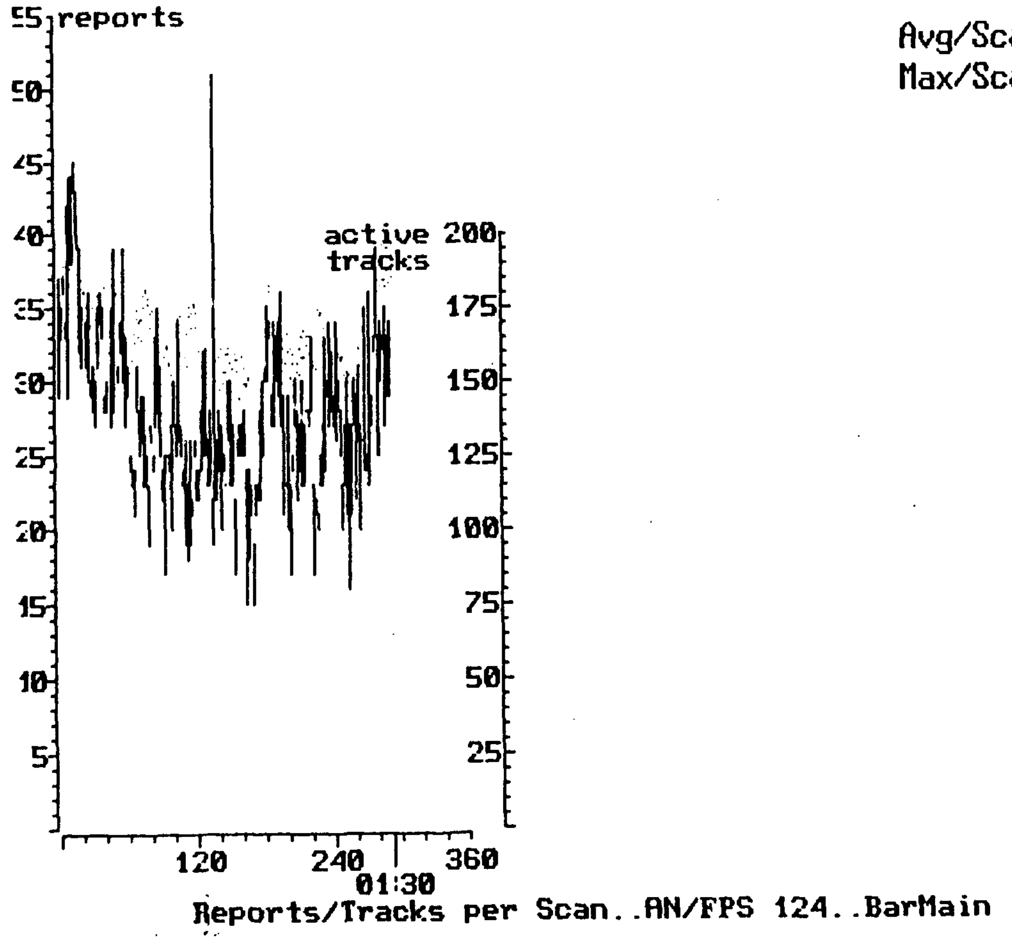


Figure B-31. AN/FPS-124 JSS Data PPI Plot, BARM0815.013



BARM0815.013
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	27.8	164.4
Max/Scan=	51	199

Figure B-32. AN/FPS-124 JSS Data Output Summary, BARM0815.013

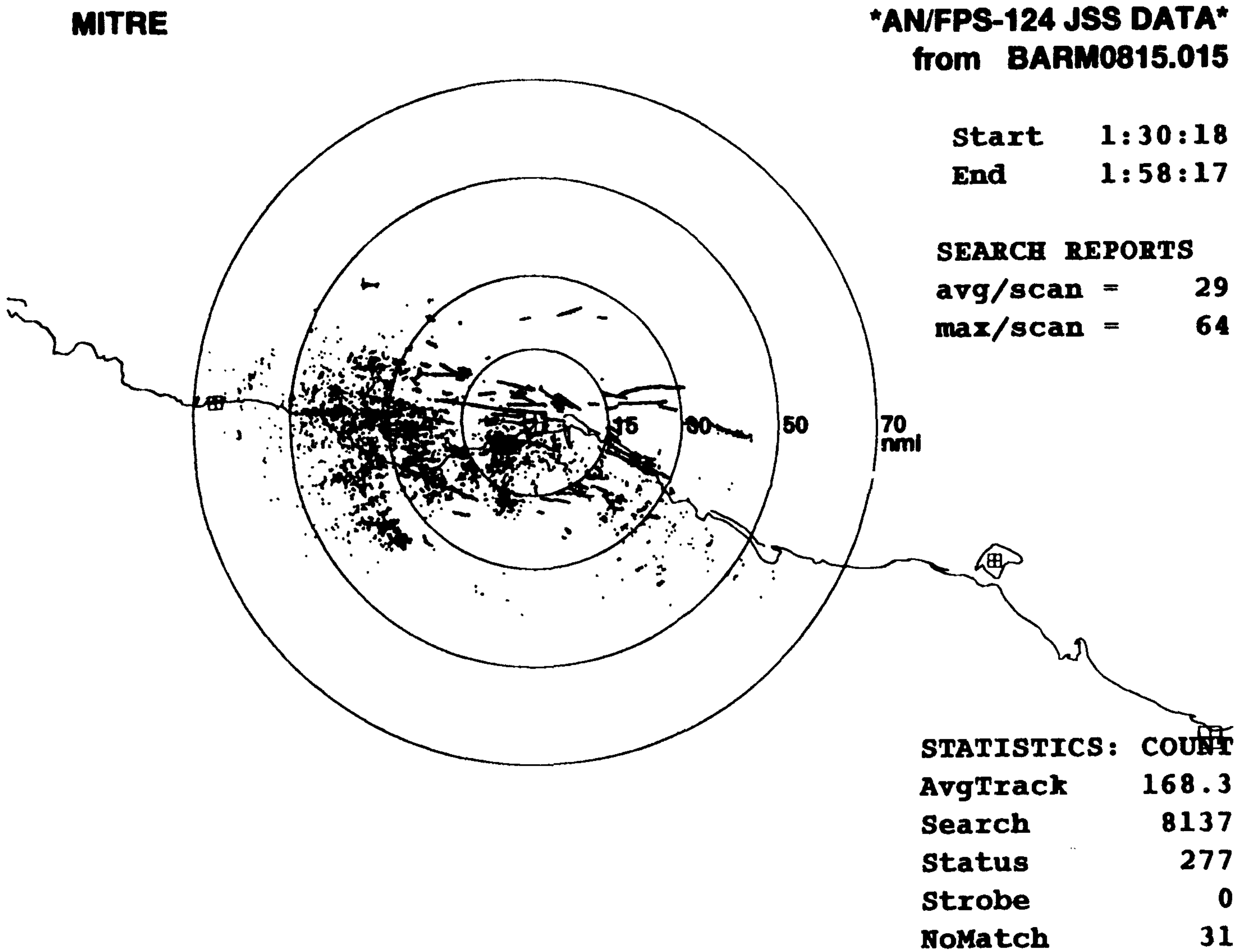


Figure B-33. AN/FPS-124 JSS Data PPI Plot, BARM0815.015

BARM0815.015
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	29.4	168.3
Max/Scan=	64	194

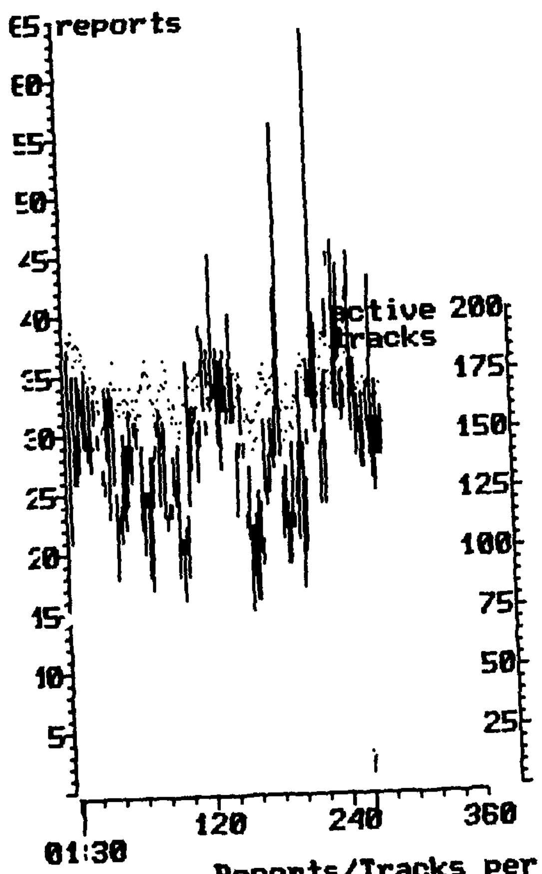


Figure B-34. AN/FPS-124 JSS Data Output Summary, BARM0815.015

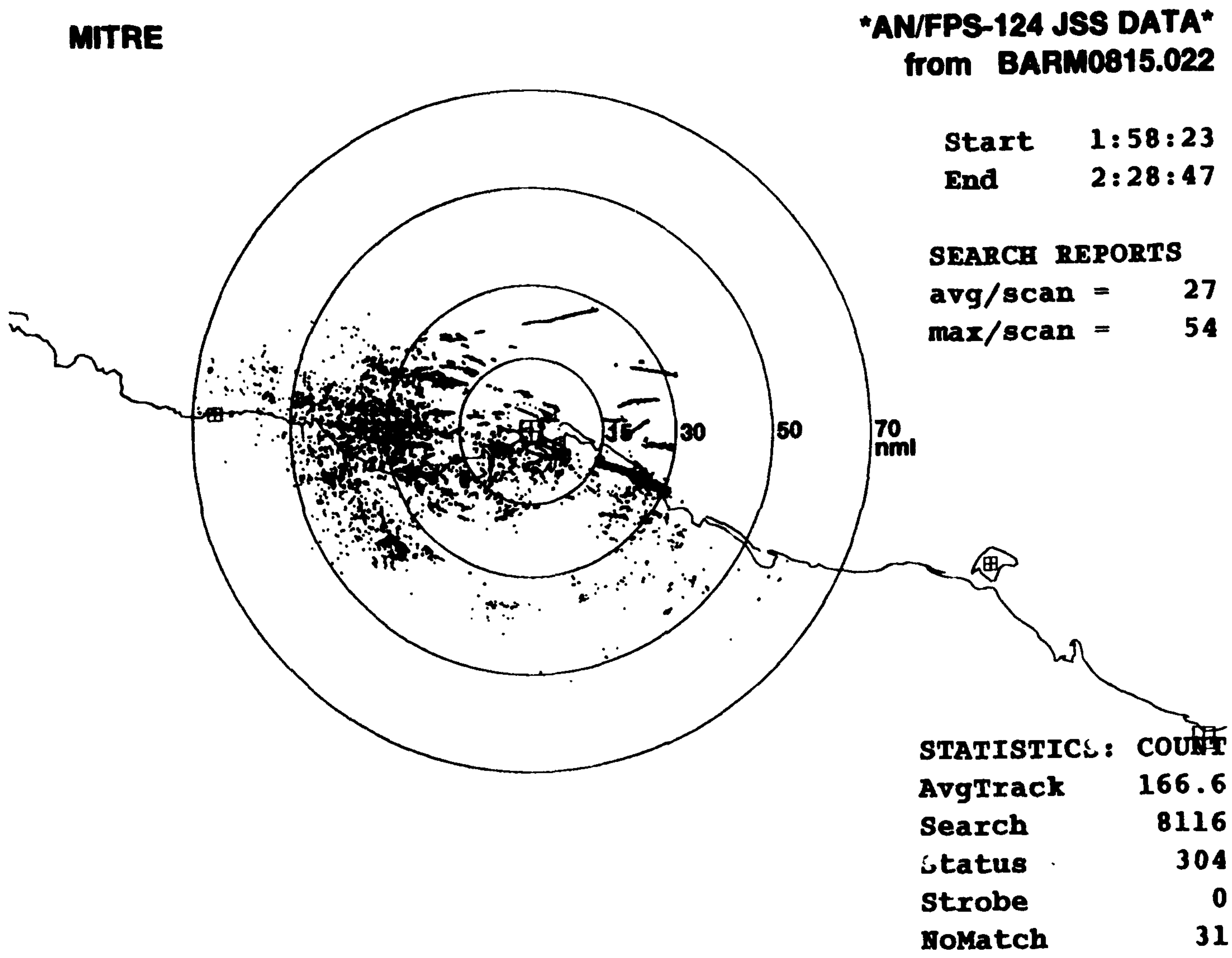
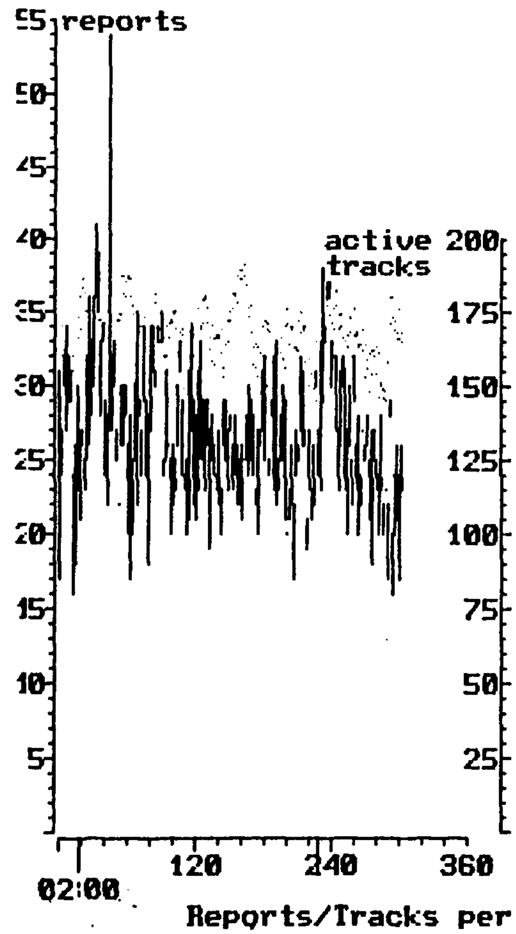


Figure B-35. AN/FPS-124 JSS Data PPI Plot, BARM0815.022



BARM0815.022
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	26.7	166.6
Max/Scan=	54	192

Figure B-36. AN/FPS-124 JSS Data Output Summary, BARM0815.022

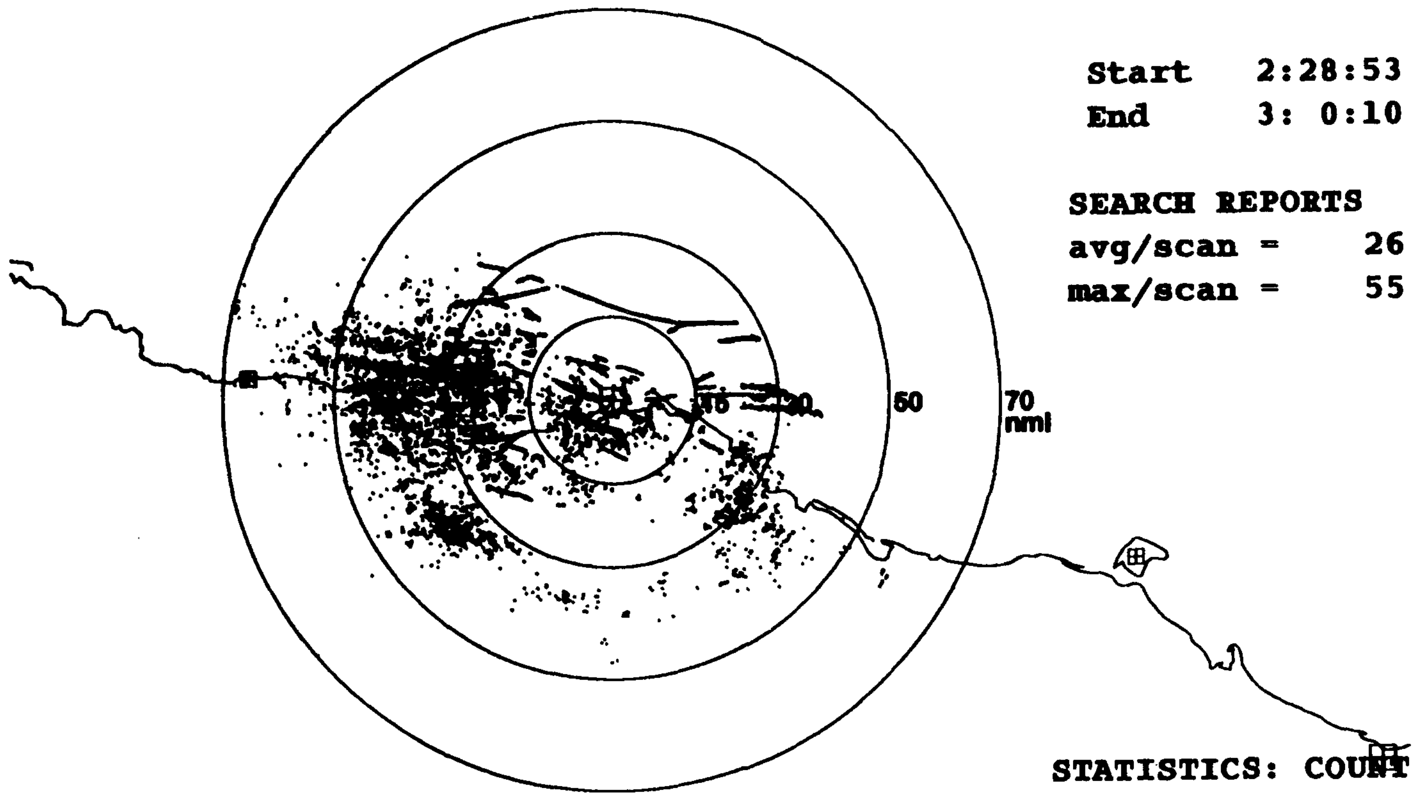
MITRE

AN/FPS-124 JSS DATA
from BARM0815.030

Start	2:28:53
End	3: 0:10

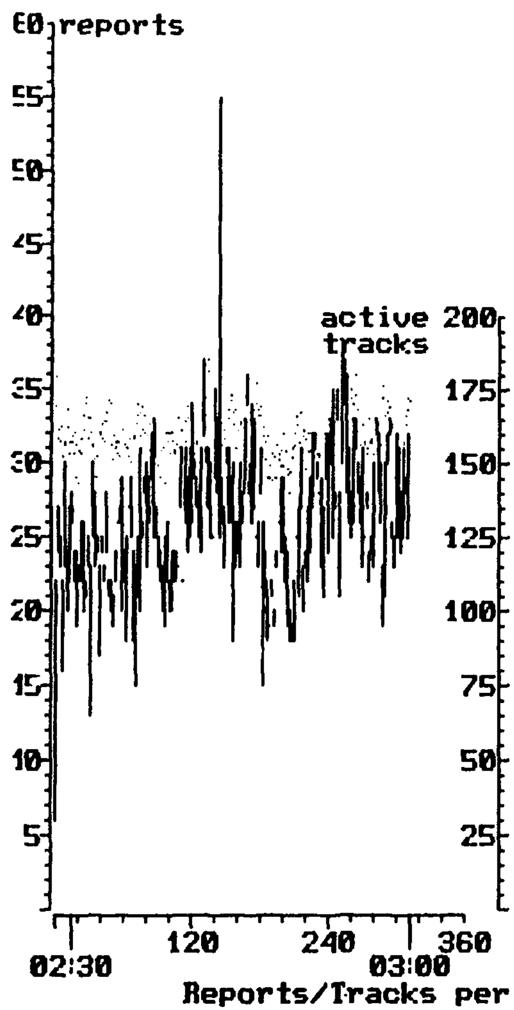
SEARCH REPORTS

avg/scan =	26
max/scan =	55



STATISTICS:	COUNT
AvgTrack	158.5
Search	8124
Status	313
Strobe	0
NoMatch	21

Figure B-37. AN/FPS-124 JSS Data PPI Plot, BARM0815.030



BARM0815.030
Output Summary:

	..Reports....	Tracks.
Avg/Scan=	25.9	158.5
Max/Scan=	55	185

Figure B-38. AN/FPS-124 JSS Data Output Summary, BARM0815.030

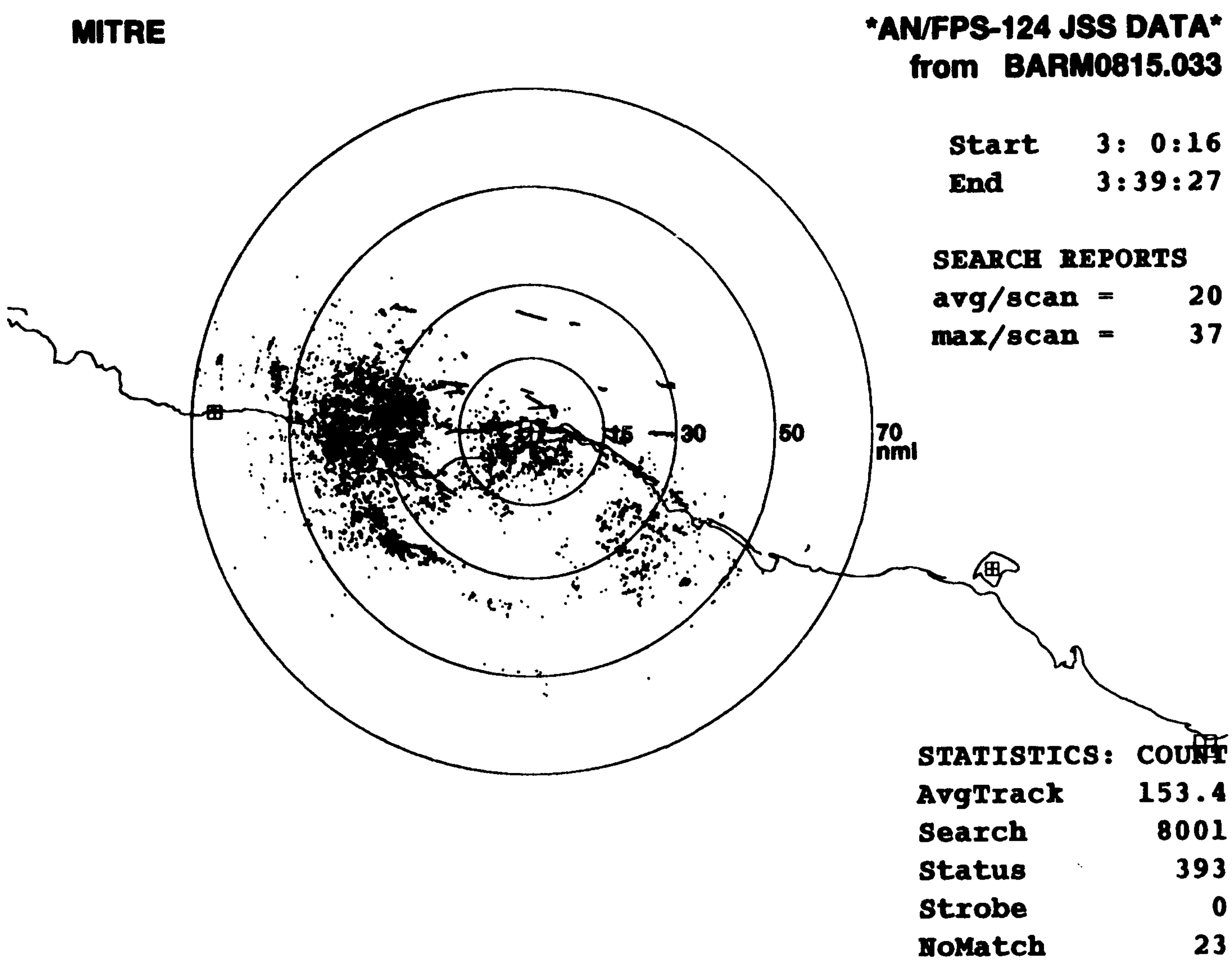


Figure B-39. AN/FPS-124 JSS Data PPI Plot, BARM0815.033

BARM0815.033
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	20.3	153.4
Max/Scan=	37	171

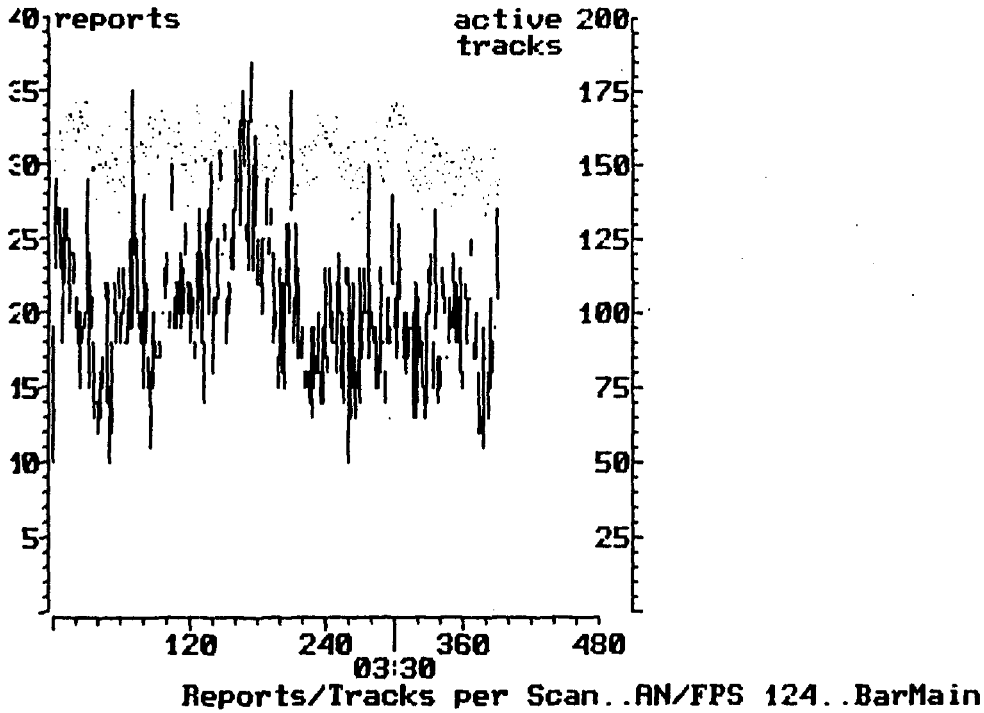
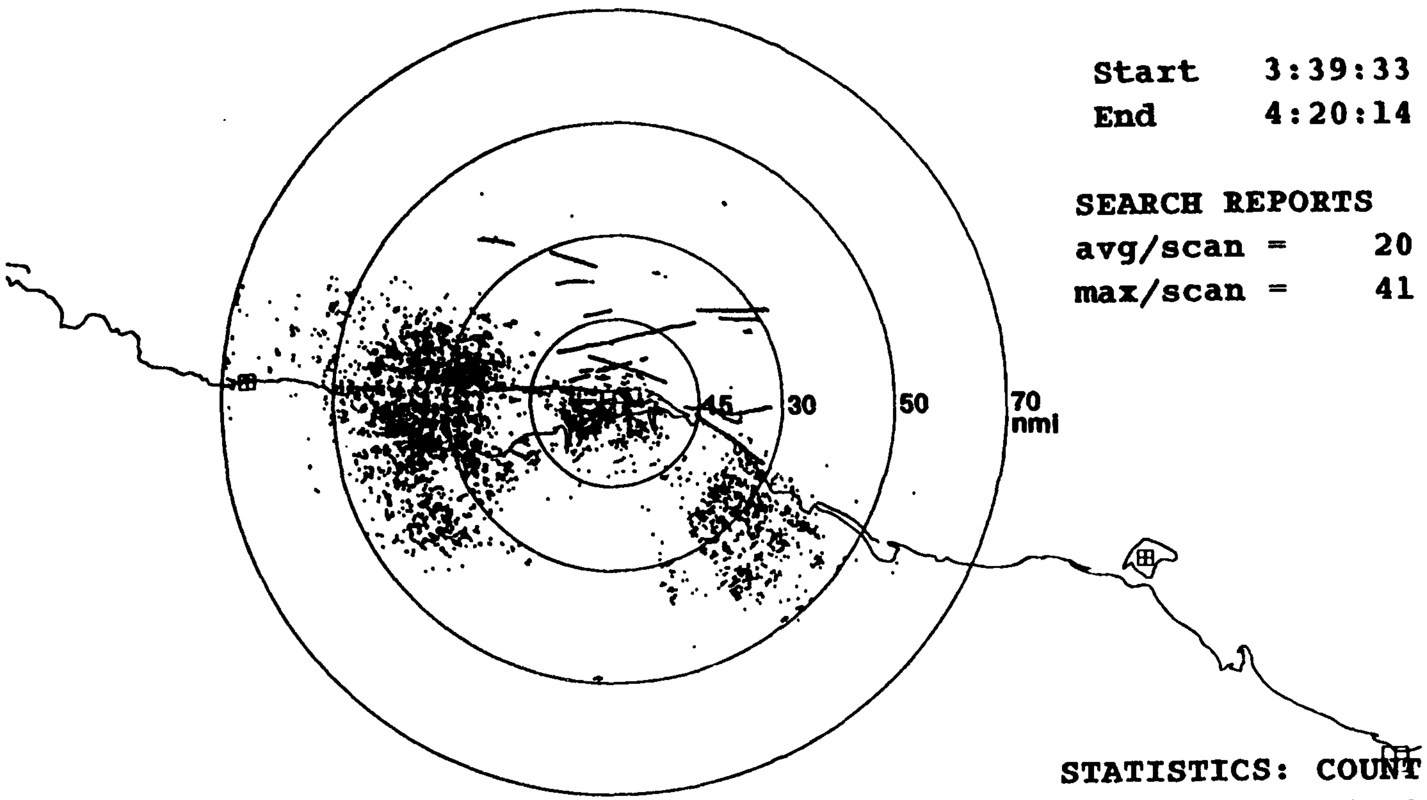


Figure B-40. AN/FPS-124 JSS Data Output Summary, BARM0815.033

MITRE

AN/FPS-124 JSS DATA
from BARM0815.042



Start	3:39:33
End	4:20:14

SEARCH REPORTS

avg/scan =	20
max/scan =	41

STATISTICS:	COUNT
AvgTrack	154.0
Search	7983
Status	404
Strobe	0
NoMatch	33

Figure B-41. AN/FPS-124 JSS Data PPI Plot, BARM0815.042

BARM0815.042
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	19.7	154.0
Max/Scan=	41	181

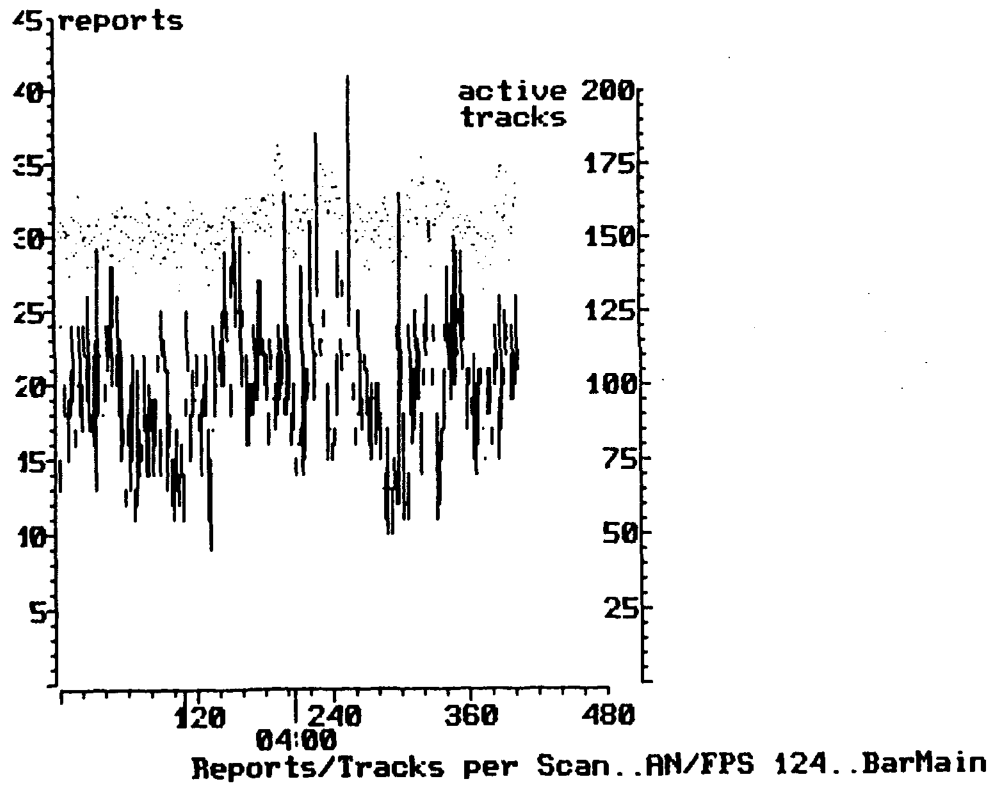


Figure B-42. AN/FPS-124 JSS Data Output Summary, BARM0815.042

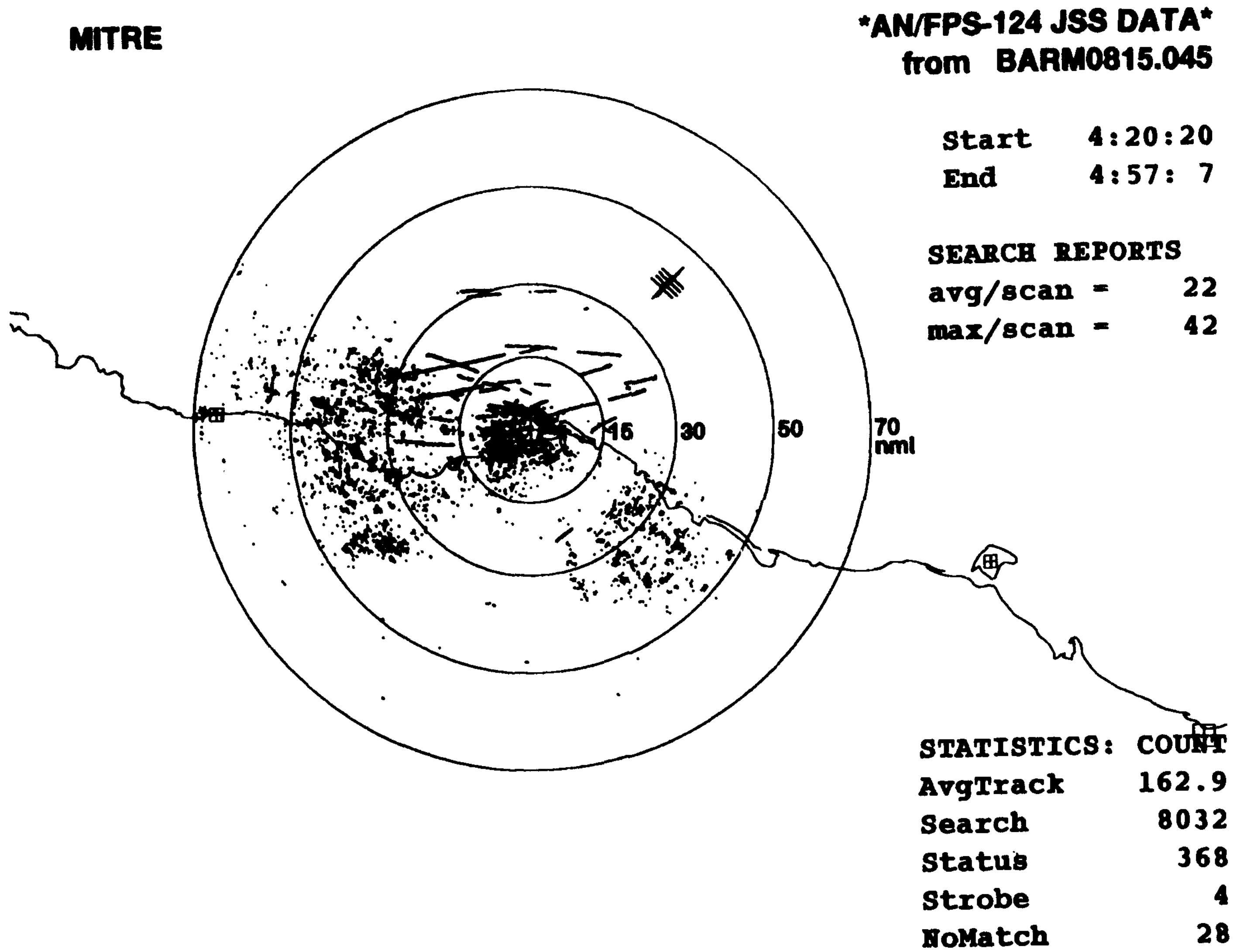


Figure B-43. AN/FPS-124 JSS Data PPI Plot, BARM0815.045

BARM0815.045
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	21.8	162.9
Max/Scan=	42	186

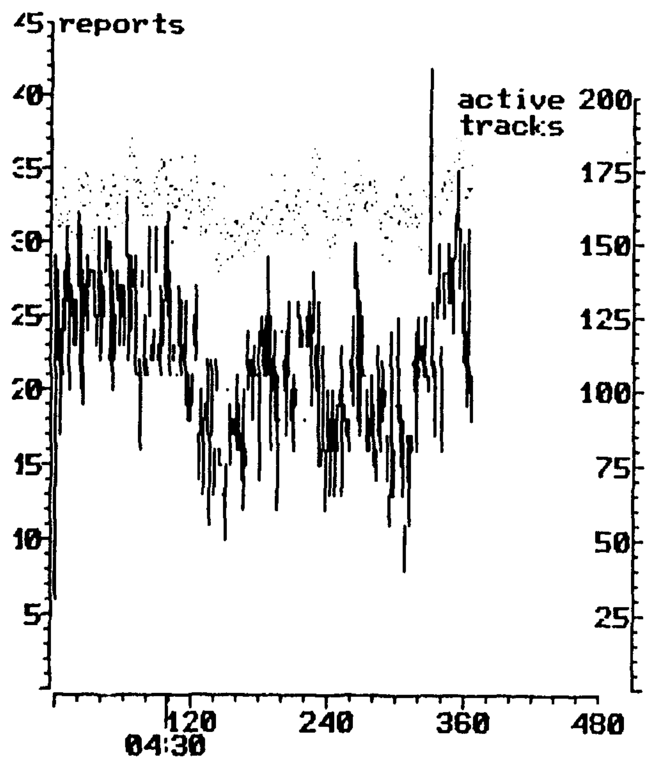


Figure B-44. AN/FPS-124 JSS Data Output Summary, BARM0815.045

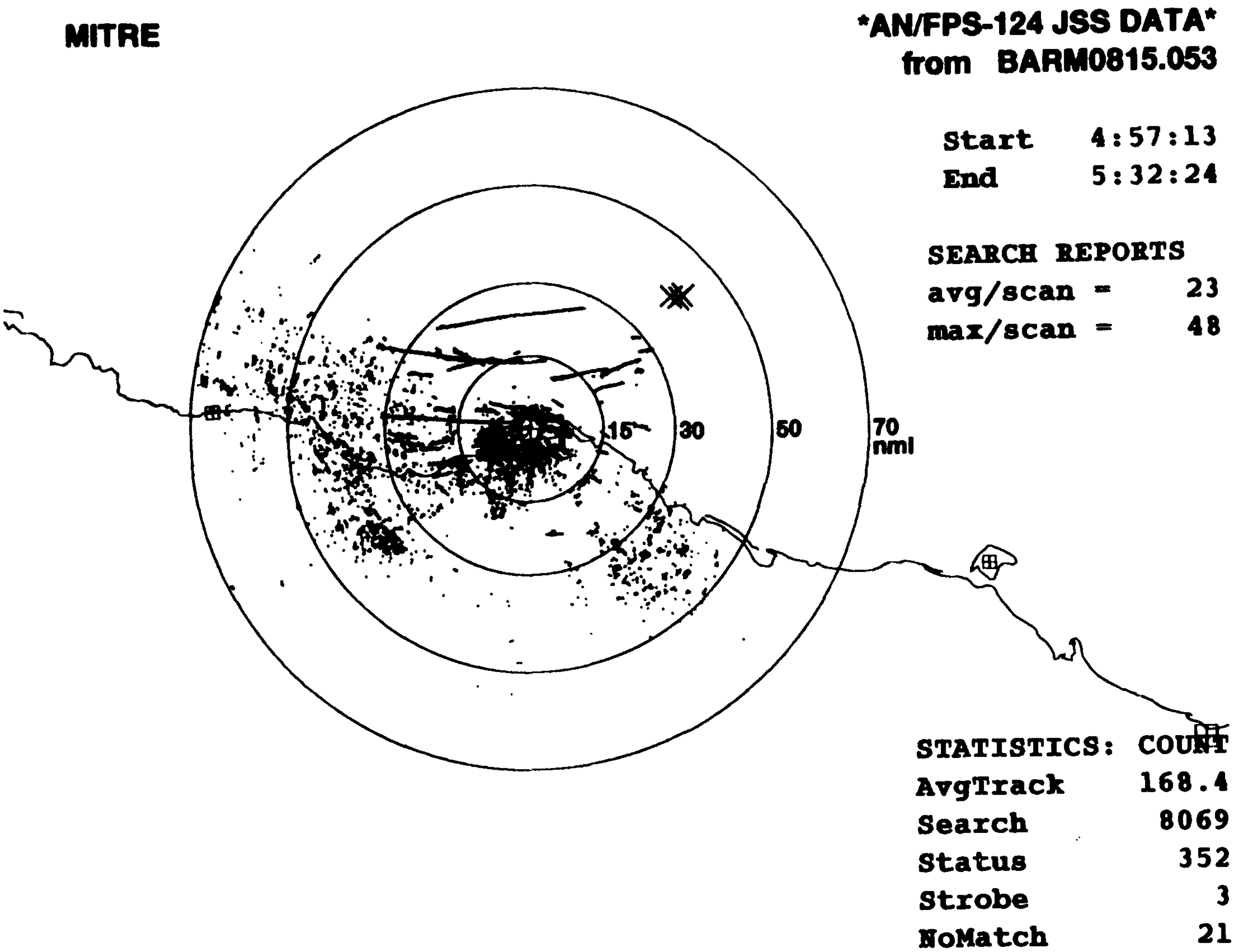


Figure B-45. AN/FPS-124 JSS Data PPI Plot, BARM0815.053

BARM0815.053

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	22.9	168.4
Max/Scan=	48	199

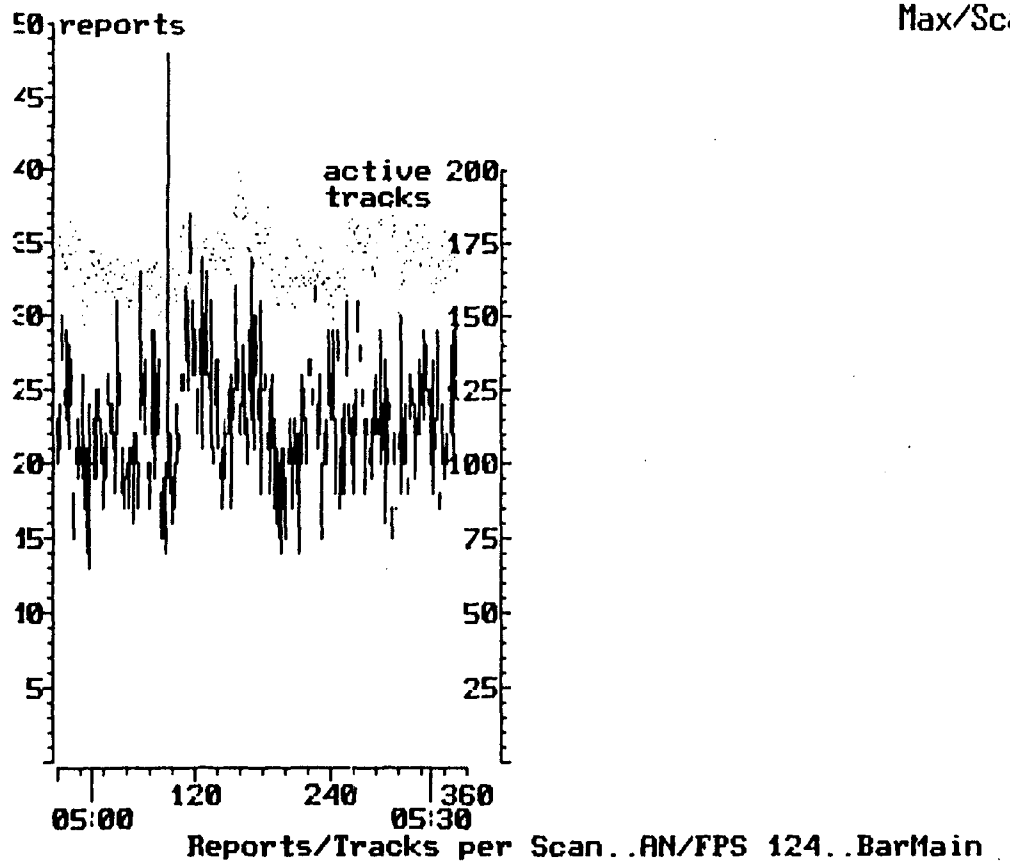


Figure B-46. AN/FPS-124 JSS Data Output Summary, BARM0815.053

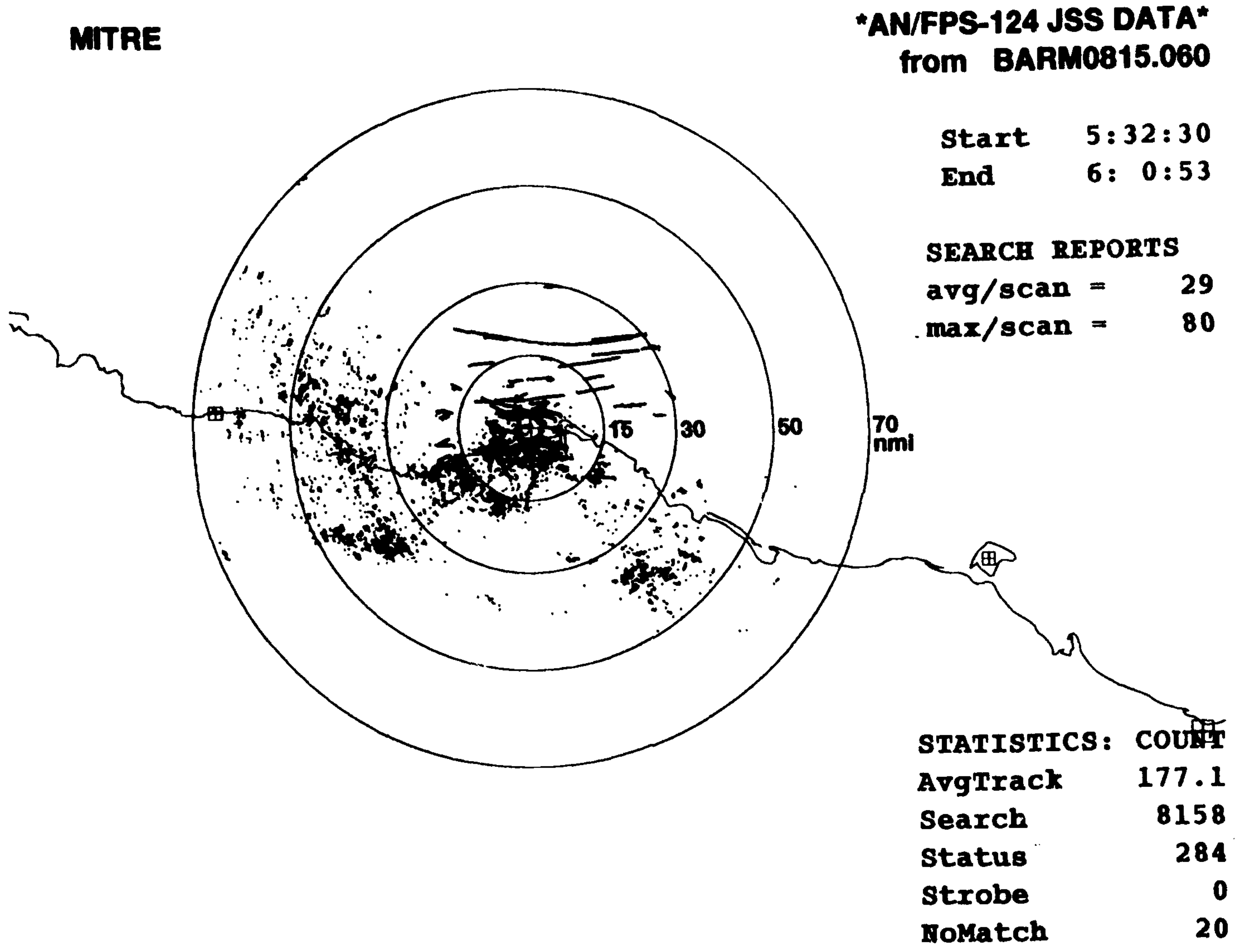


Figure B-47. AN/FPS-124 JSS Data PPI Plot, BARM0815.060

BARM0815.060
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	28.6	177.1
Max/Scan=	80	198

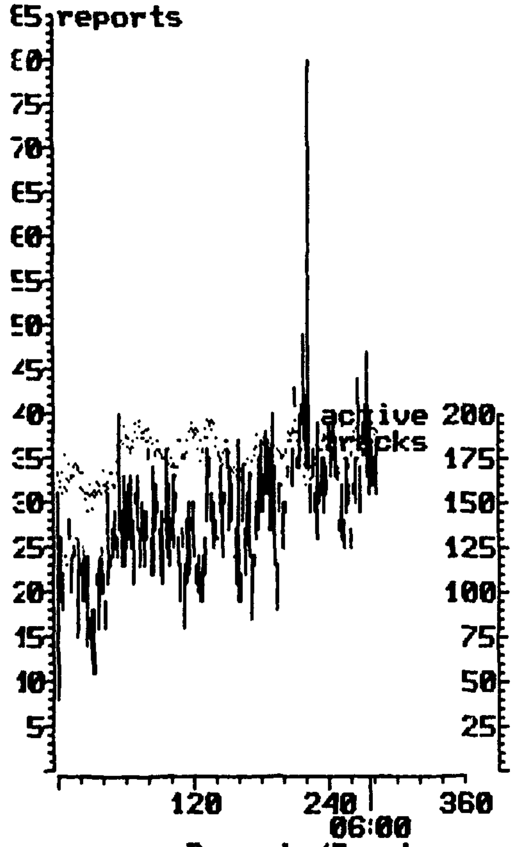


Figure B-48. AN/FPS-124 JSS Data Output Summary, BARM0815.060

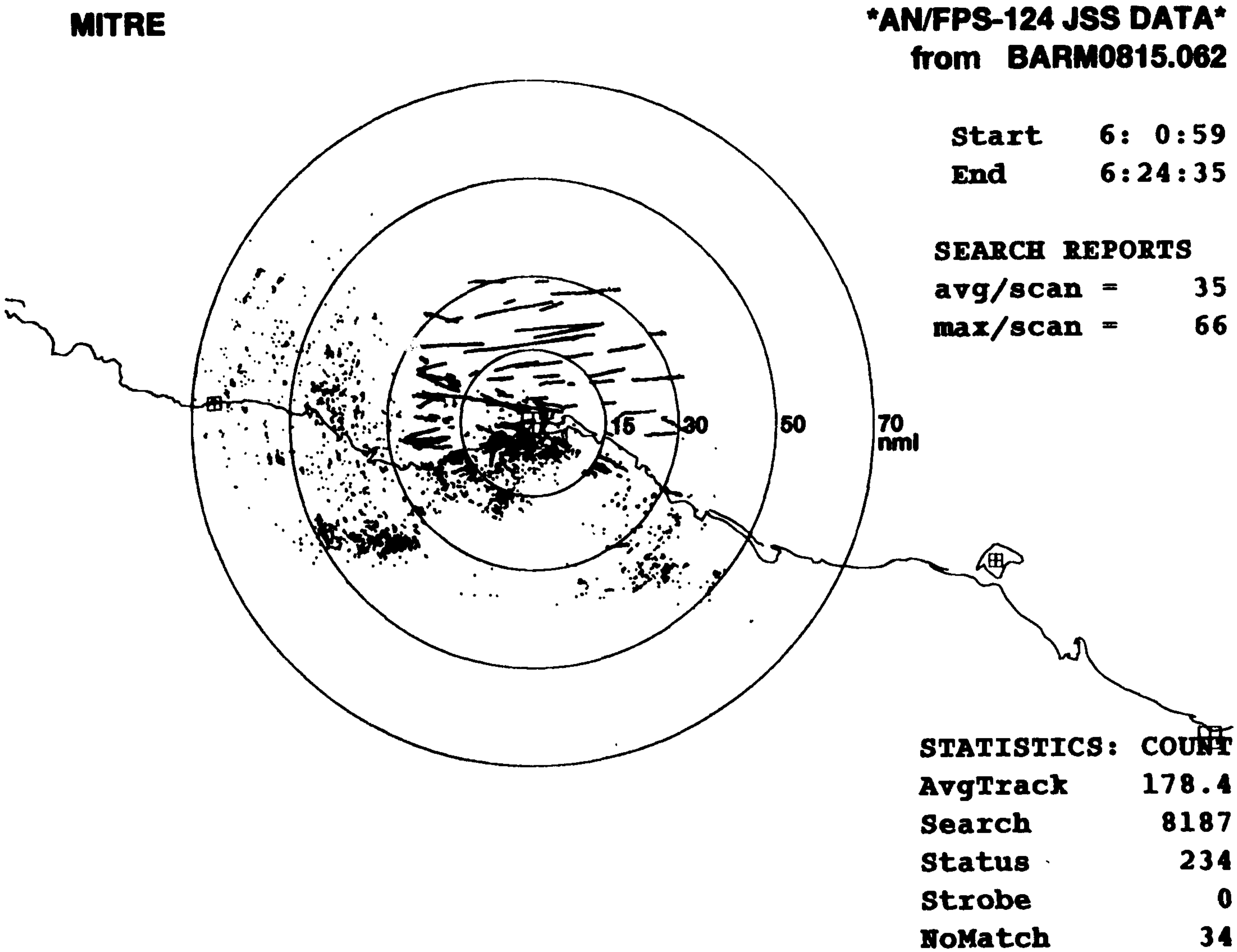
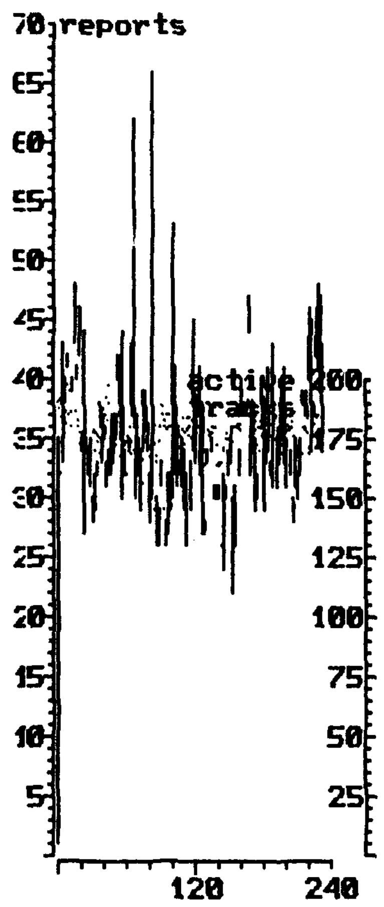


Figure B-49. AN/FPS-124 JSS Data PPI Plot, BARM0815.062

BARM0815.062

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	34.9	178.4
Max/Scan=	66	200



Reports/Tracks per Scan..AN/FPS 124..BarMain

Figure B-50. AN/FPS-124 JSS Data Output Summary, BARM0815.062

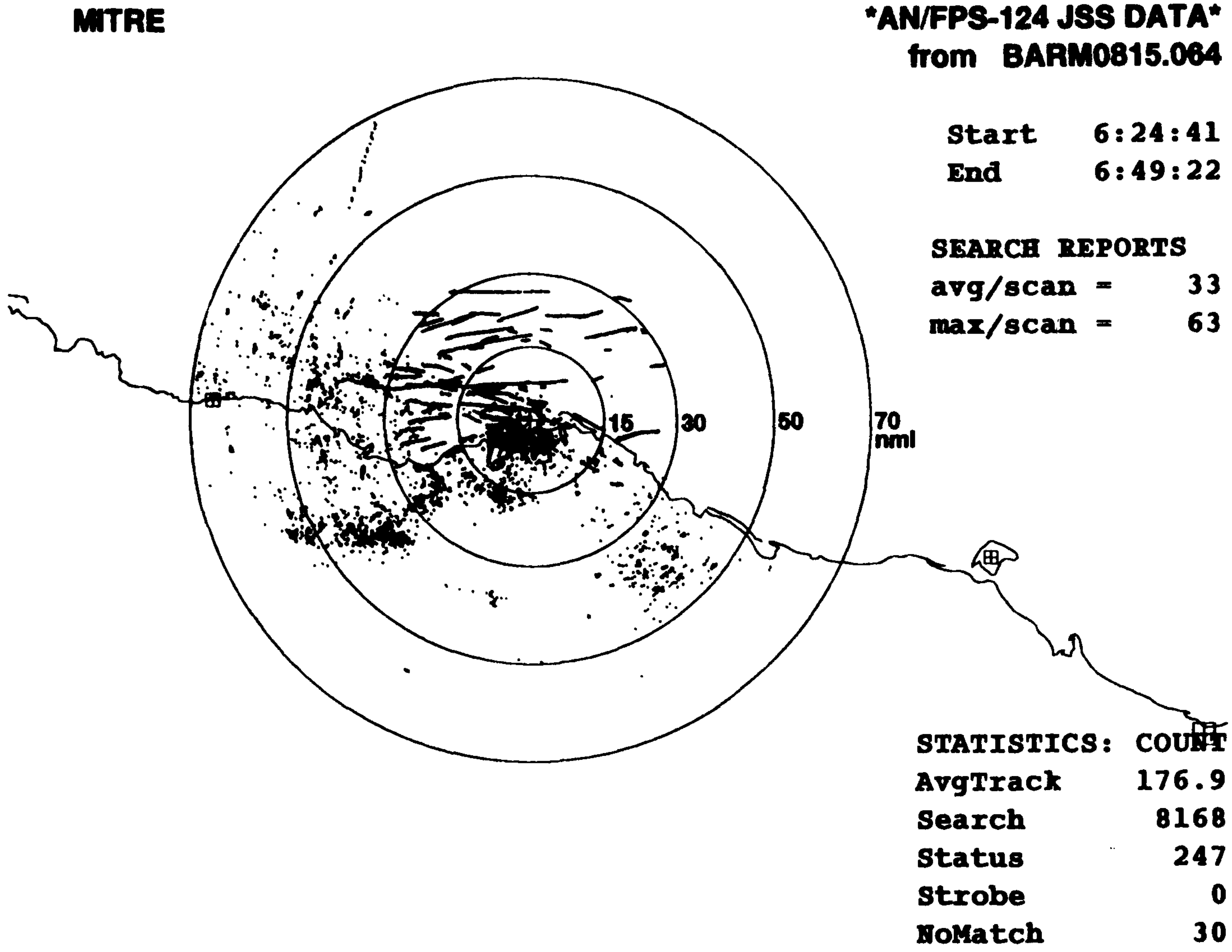
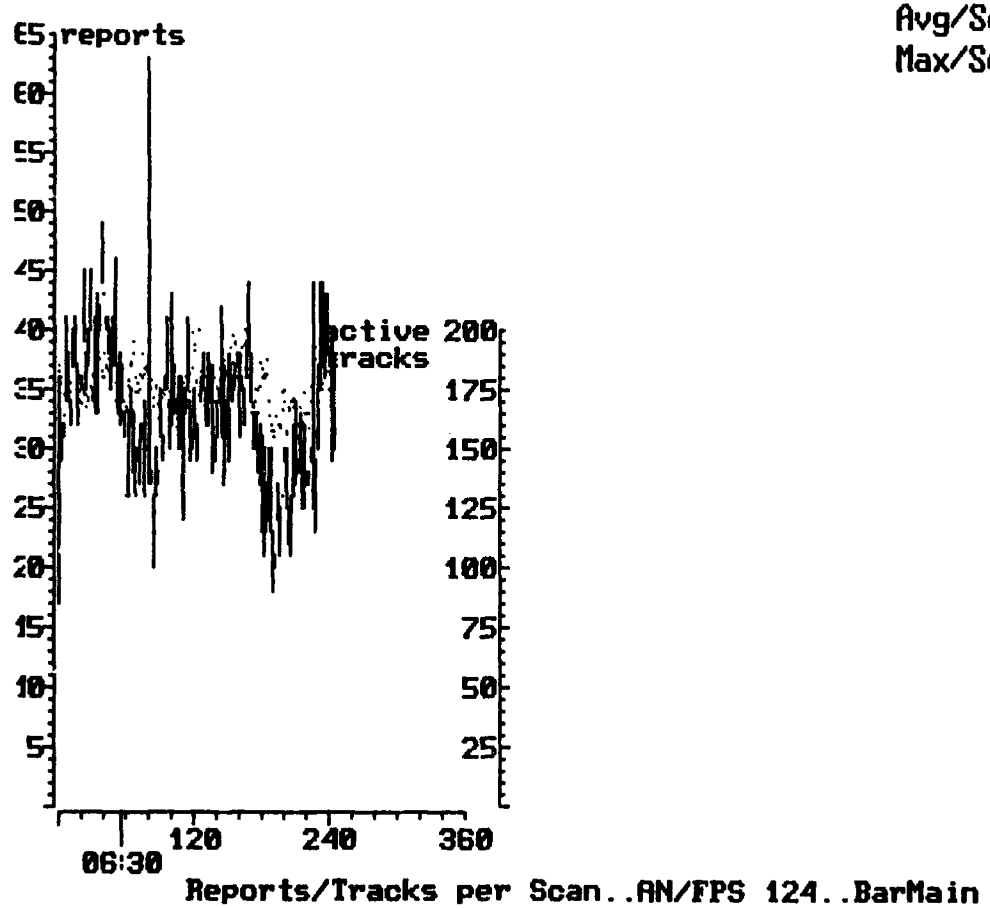


Figure B-51. AN/FPS-124 JSS Data PPI Plot, BARM0815.064



BARM0815.064
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	33.0	176.9
Max/Scan=	63	200

Figure B-52. AN/FPS-124 JSS Data Output Summary, BARM0815.064

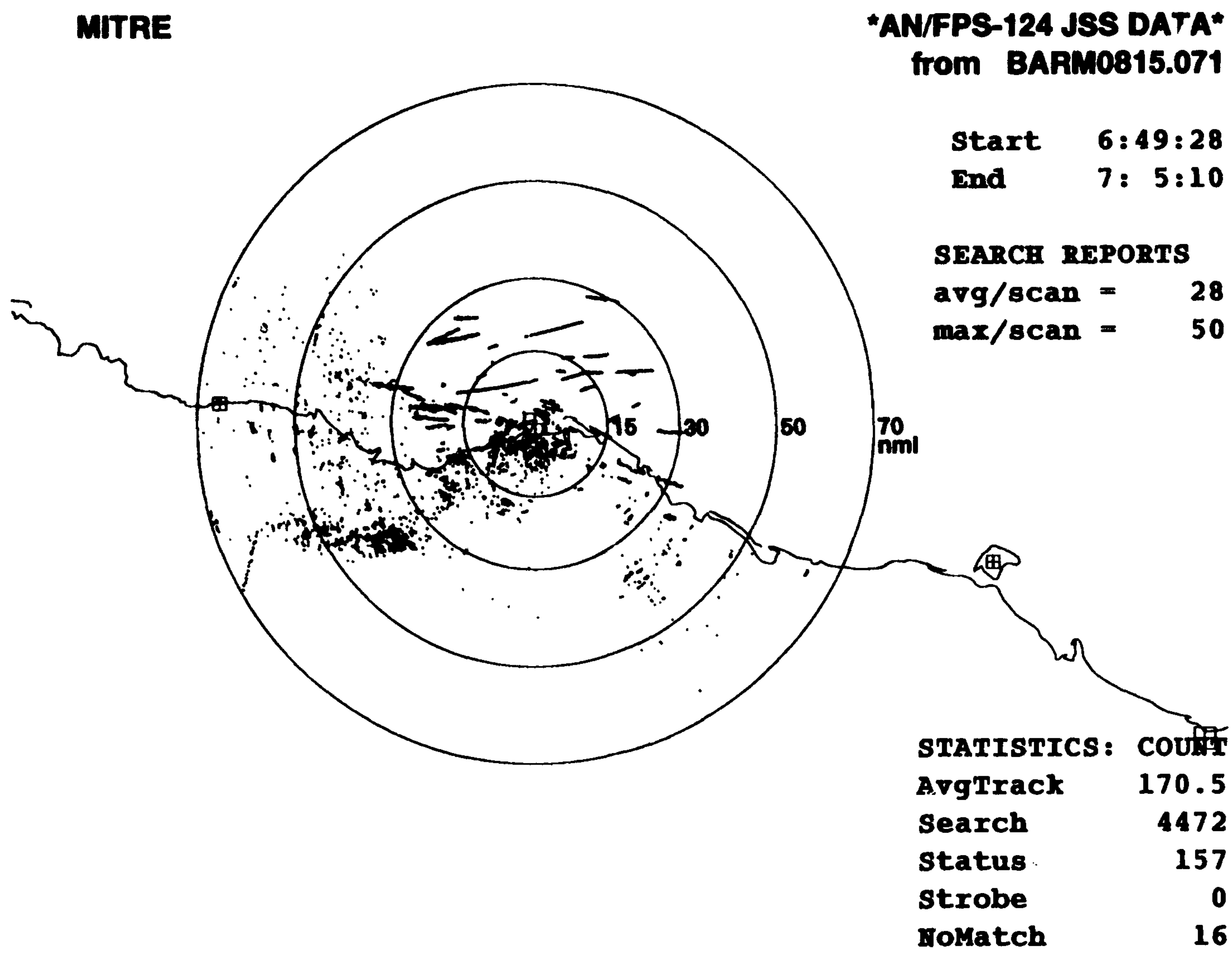
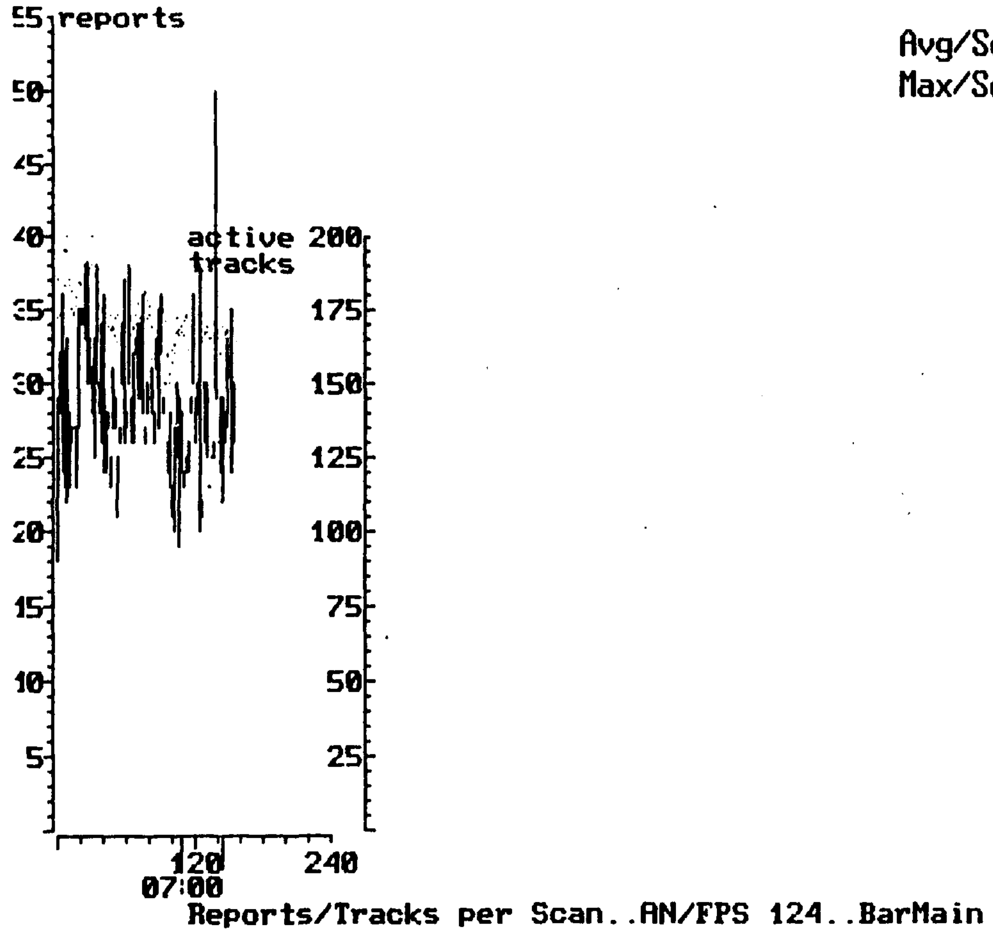


Figure B-53. AN/FPS-124 JSS Data PPI Plot, BARM0815.071



BARM0815.071
Output Summary:

	..Reports....	Tracks.
Avg/Scan=	28.4	170.5
Max/Scan=	50	200

Figure B-54. AN/FPS-124 JSS Data Output Summary, BARM0815.071

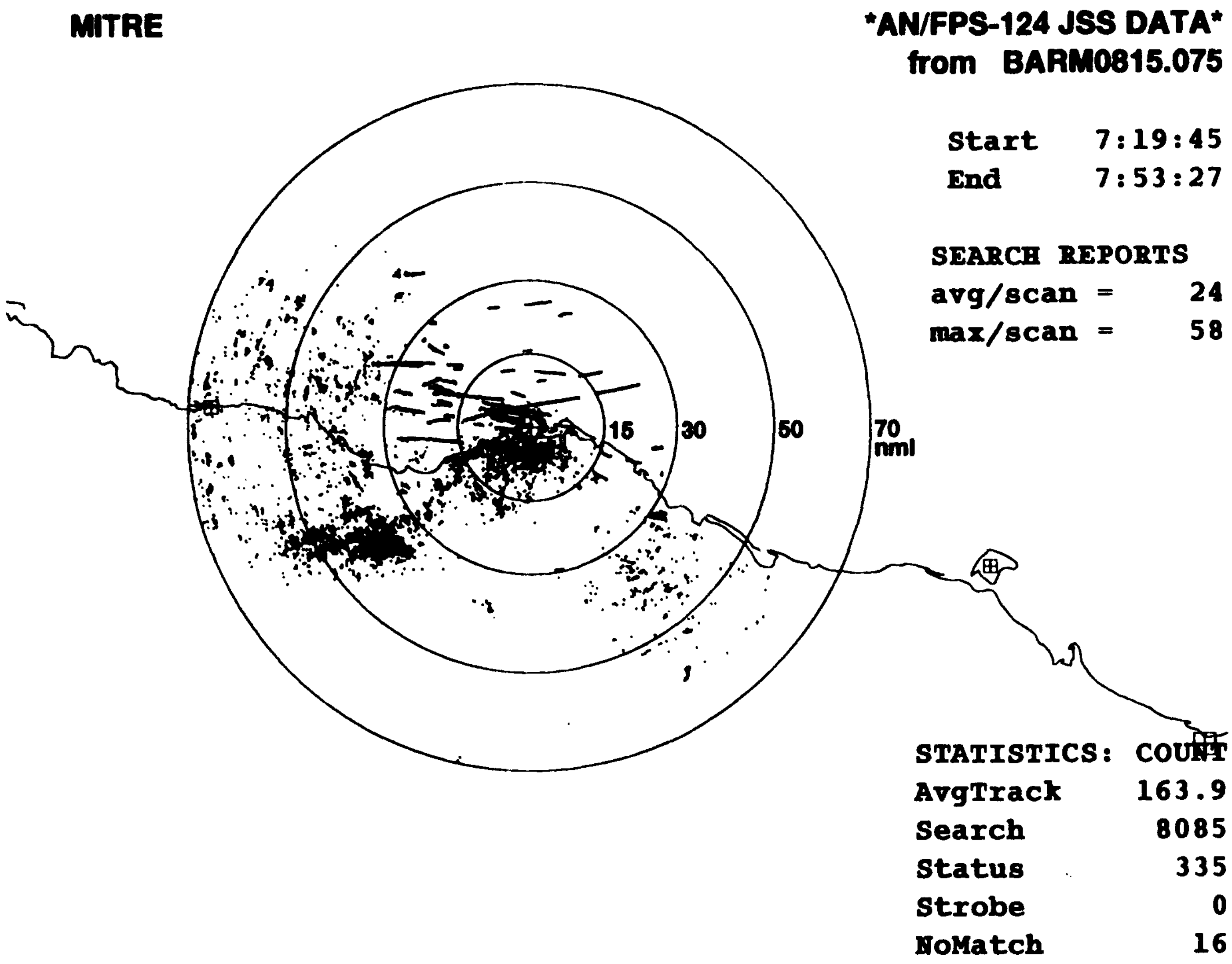
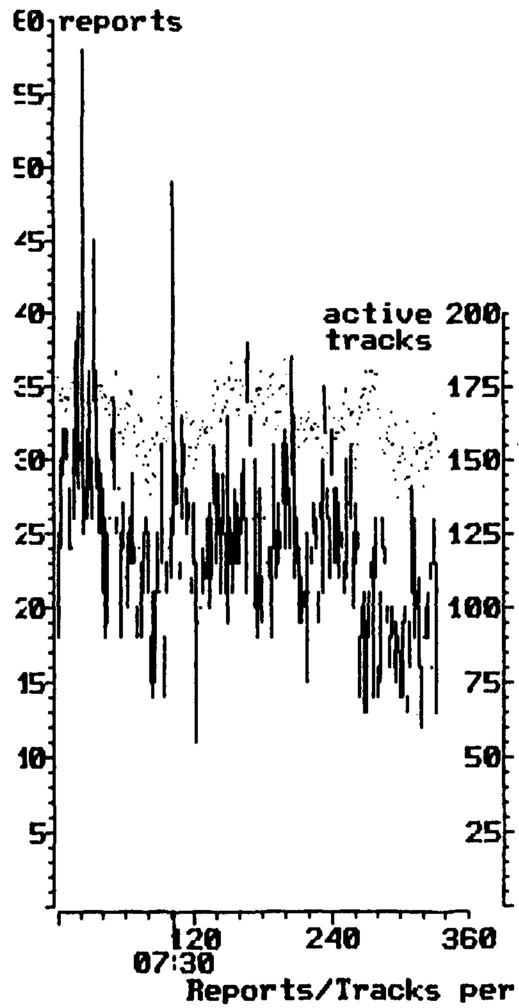


Figure B-55. AN/FPS-124 JSS Data PPI Plot, BARM0815.075



BARM0815.075
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	24.1	163.9
Max/Scan=	58	193

Figure B-56. AN/FPS-124 JSS Data Output Summary, BARM0815.075

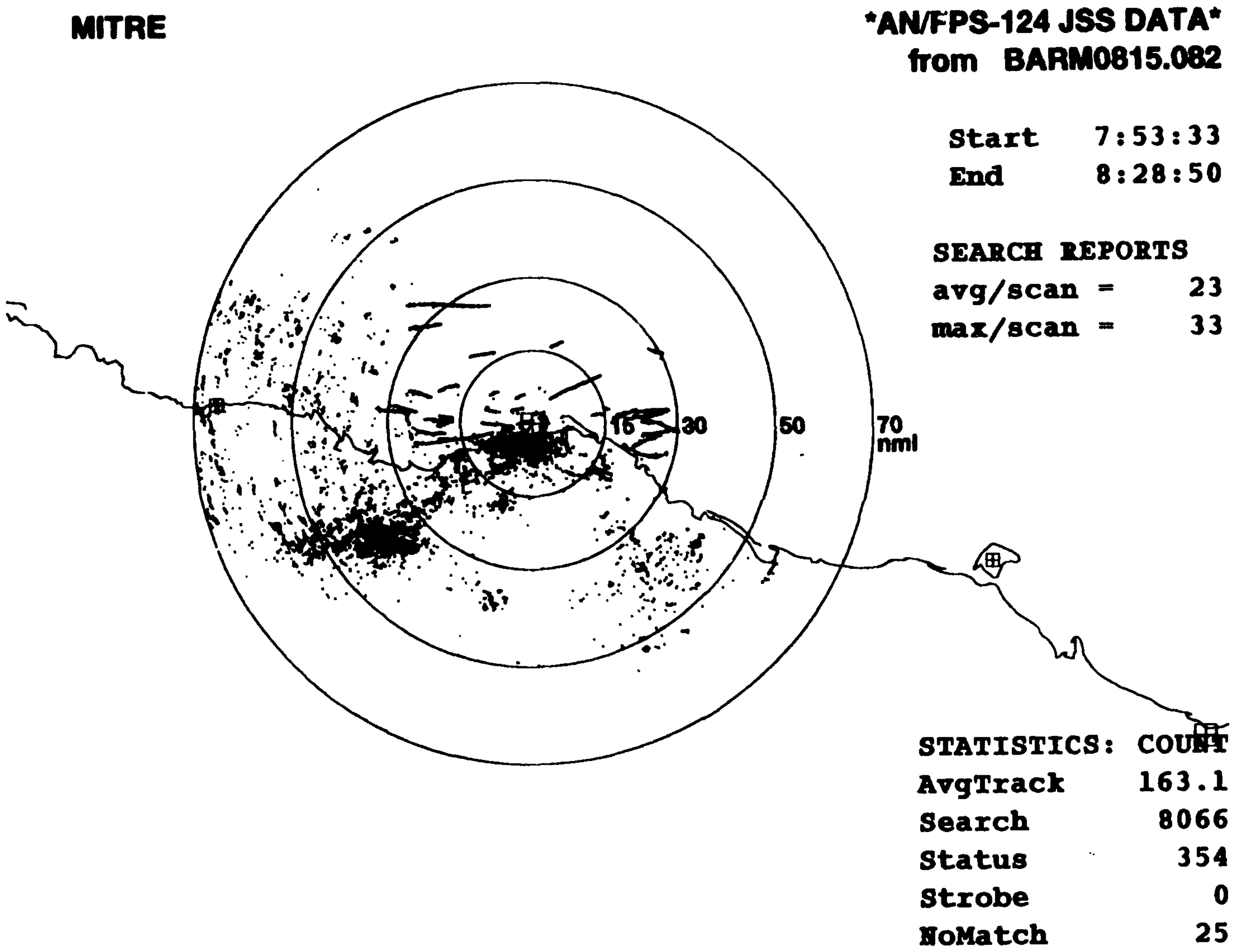


Figure B-57. AN/FPS-124 JSS Data PPI Plot, BARM0815.082

BARM0815.082
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	22.7	163.1
Max/Scan=	33	188

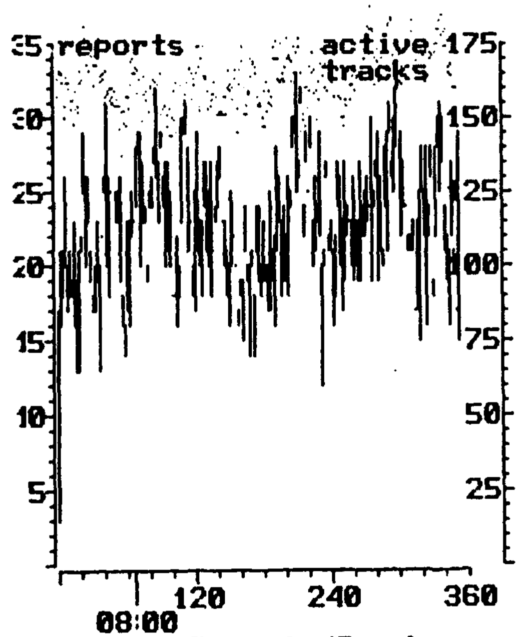


Figure B-58. AN/FPS-124 JSS Data Output Summary, BARM0815.082

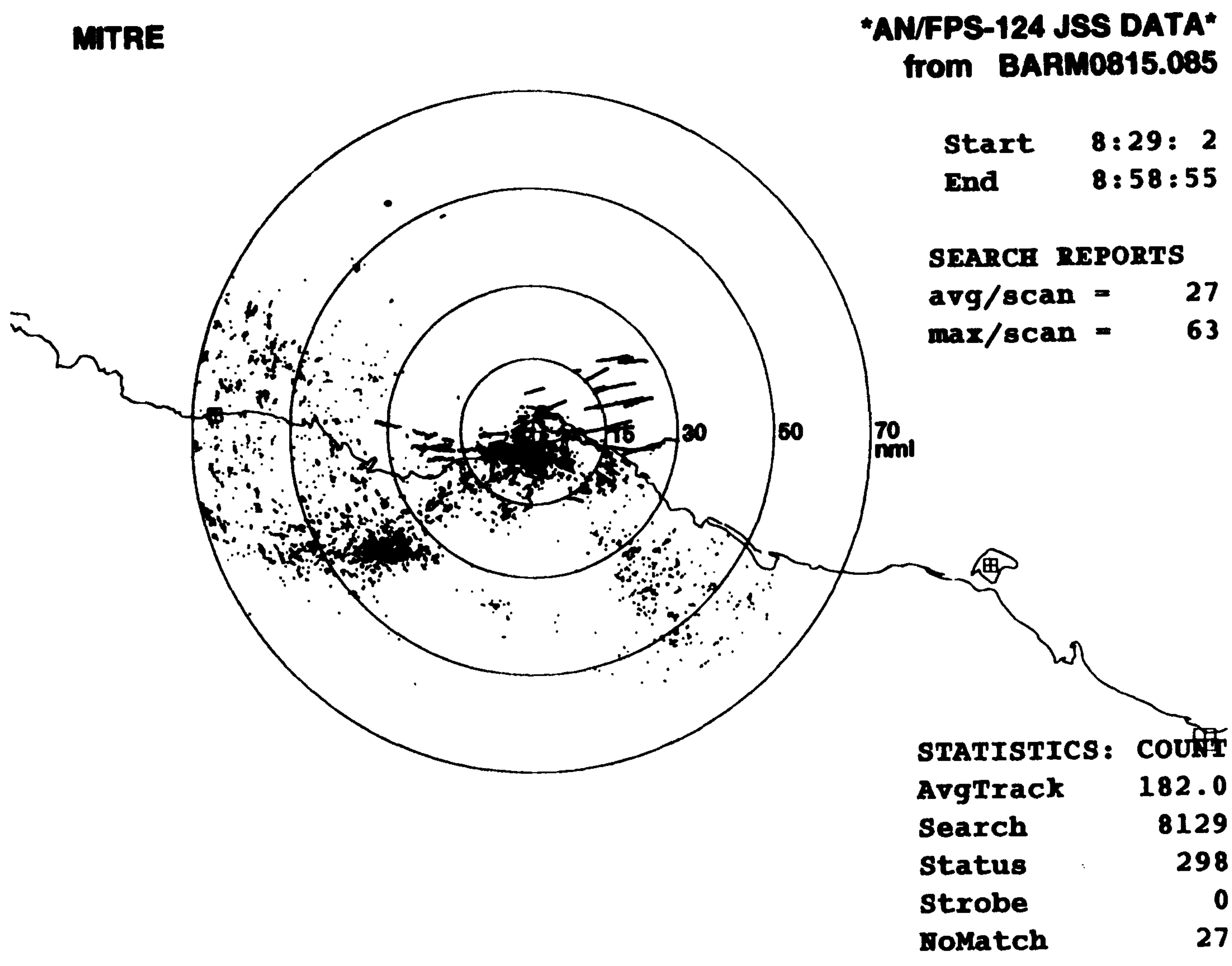


Figure B-59. AN/FPS-124 JSS Data PPI Plot, BARM0815.085

BARM0815.085

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	27.3	182.0
Max/Scan=	63	200

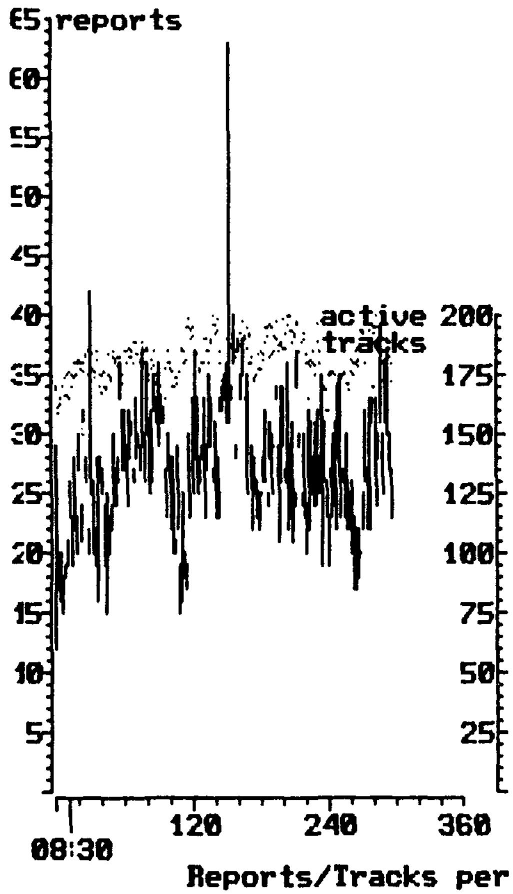


Figure B-60. AN/FPS-124 JSS Data Output Summary, BARM0815.085

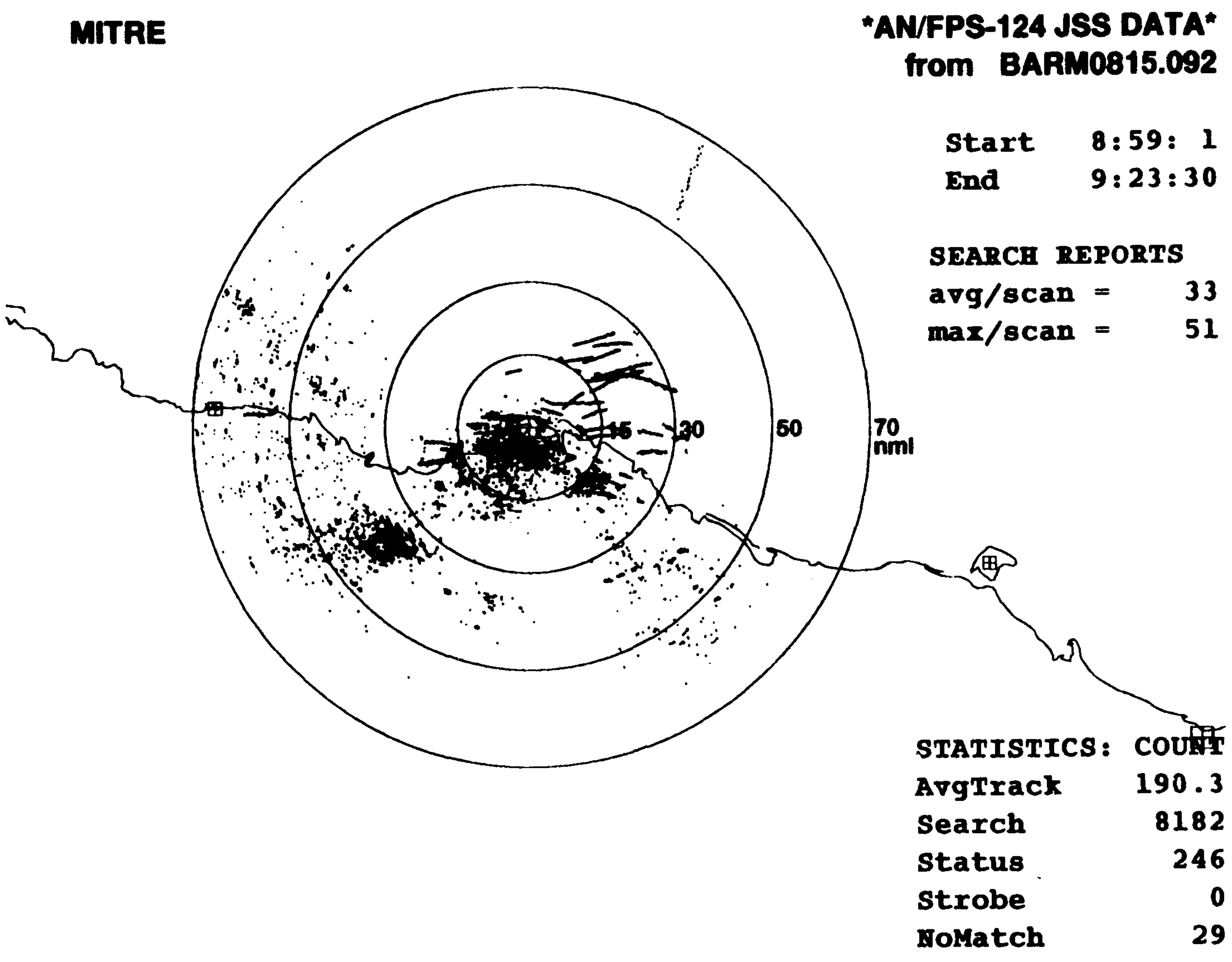


Figure B-61. AN/FPS-124 JSS Data PPI Plot, BARM0815.092

BARM0815.092

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	33.2	190.3
Max/Scan=	51	200

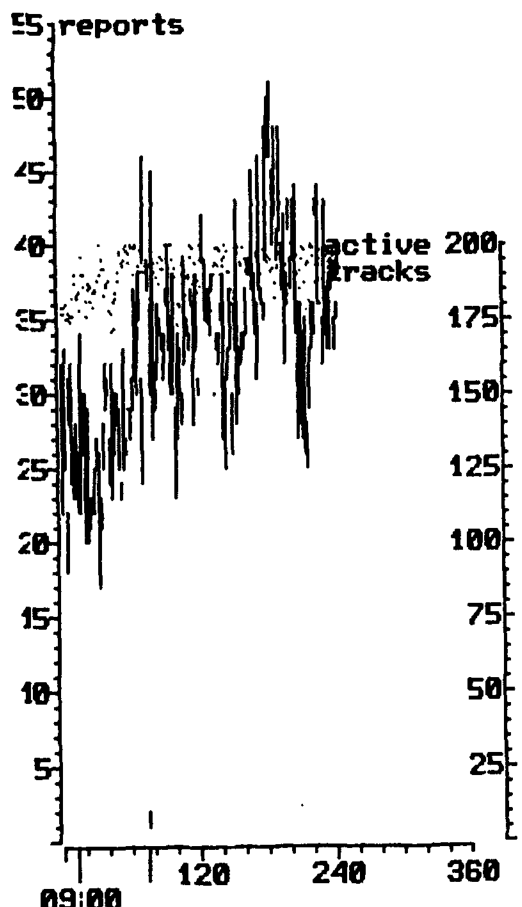


Figure B-62. AN/FPS-124 JSS Data Output Summary, BARM0815.092

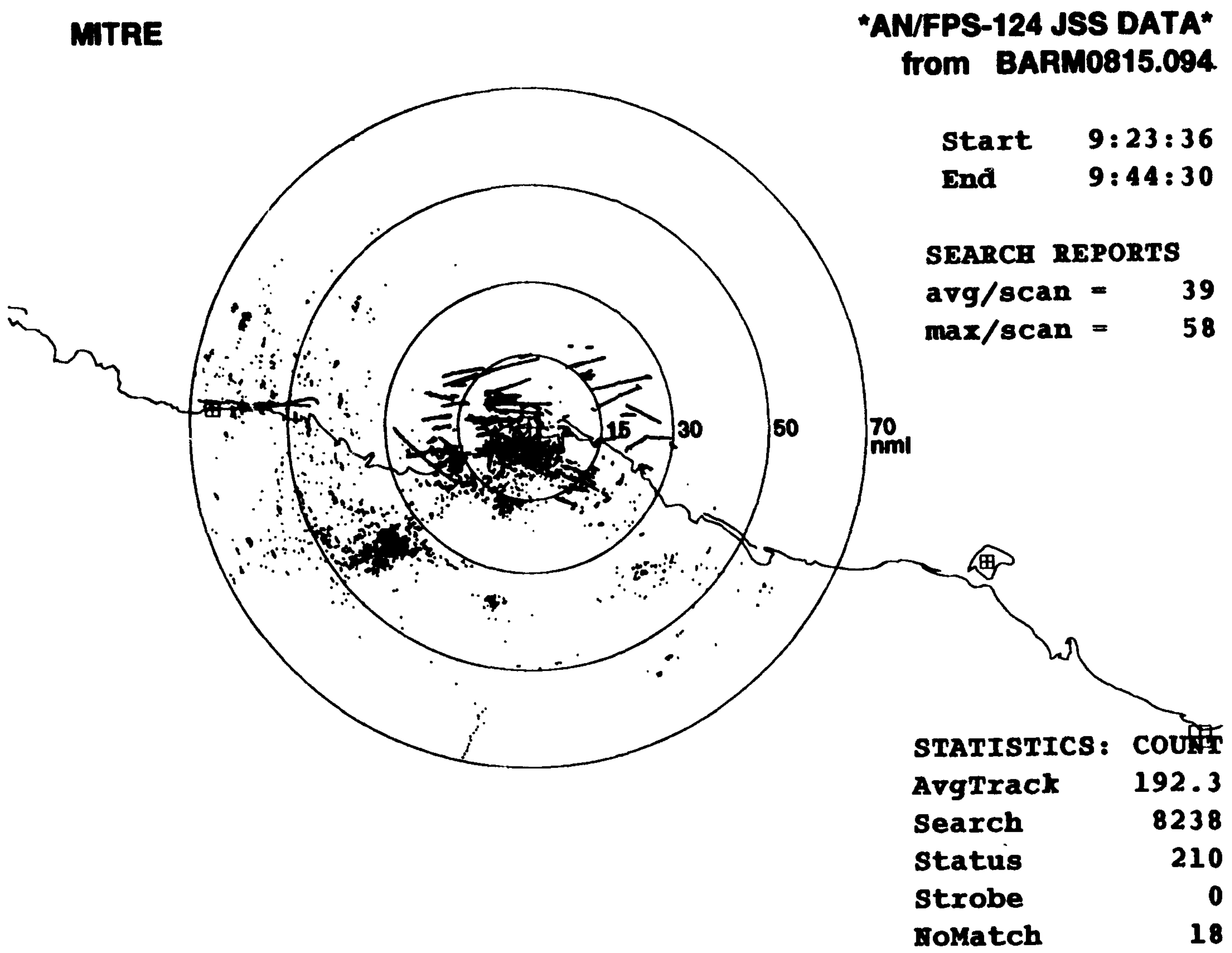
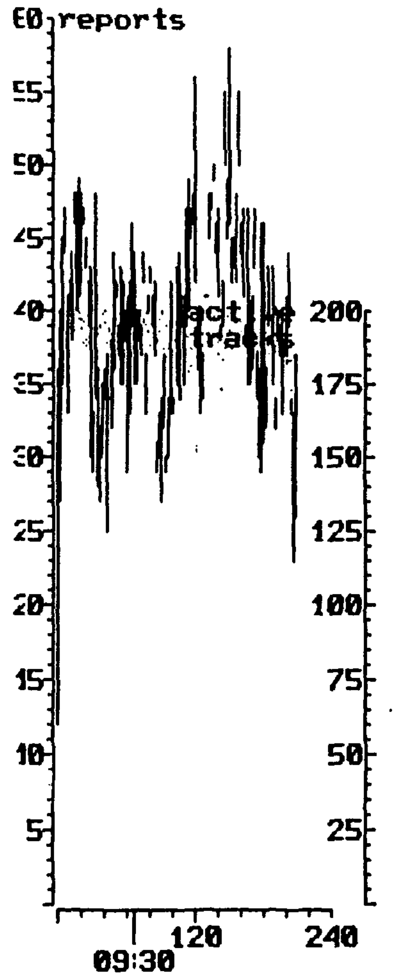


Figure B-63. AN/FPS-124 JSS Data PPI Plot, BARM0815.094



BARM0815.094

Output Summary:

	..Reports	....Tracks.
Avg/Scan=	39.3	192.3
Max/Scan=	58	200

Figure B-64. AN/FPS-124 JSS Data Output Summary, BARM0815.094

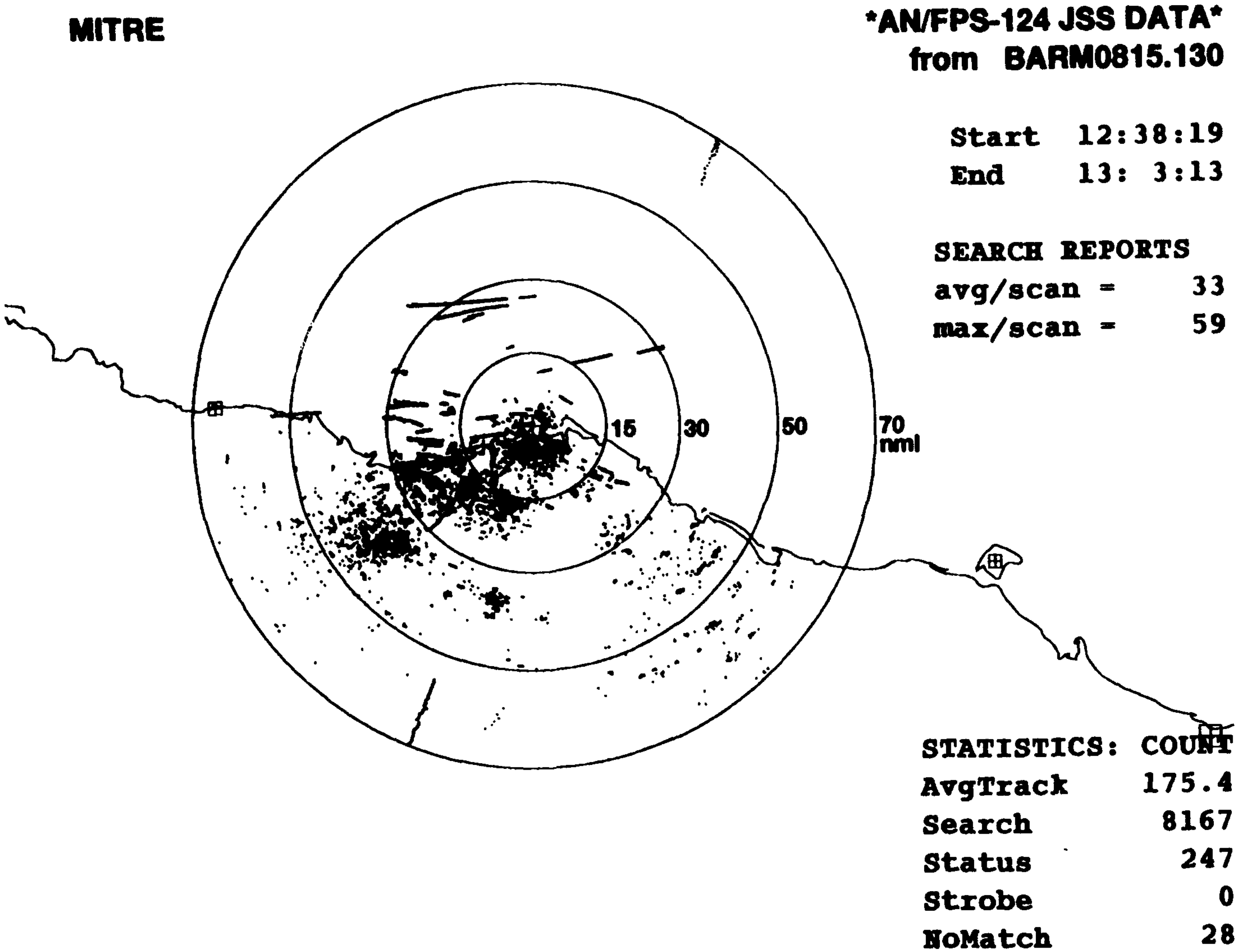
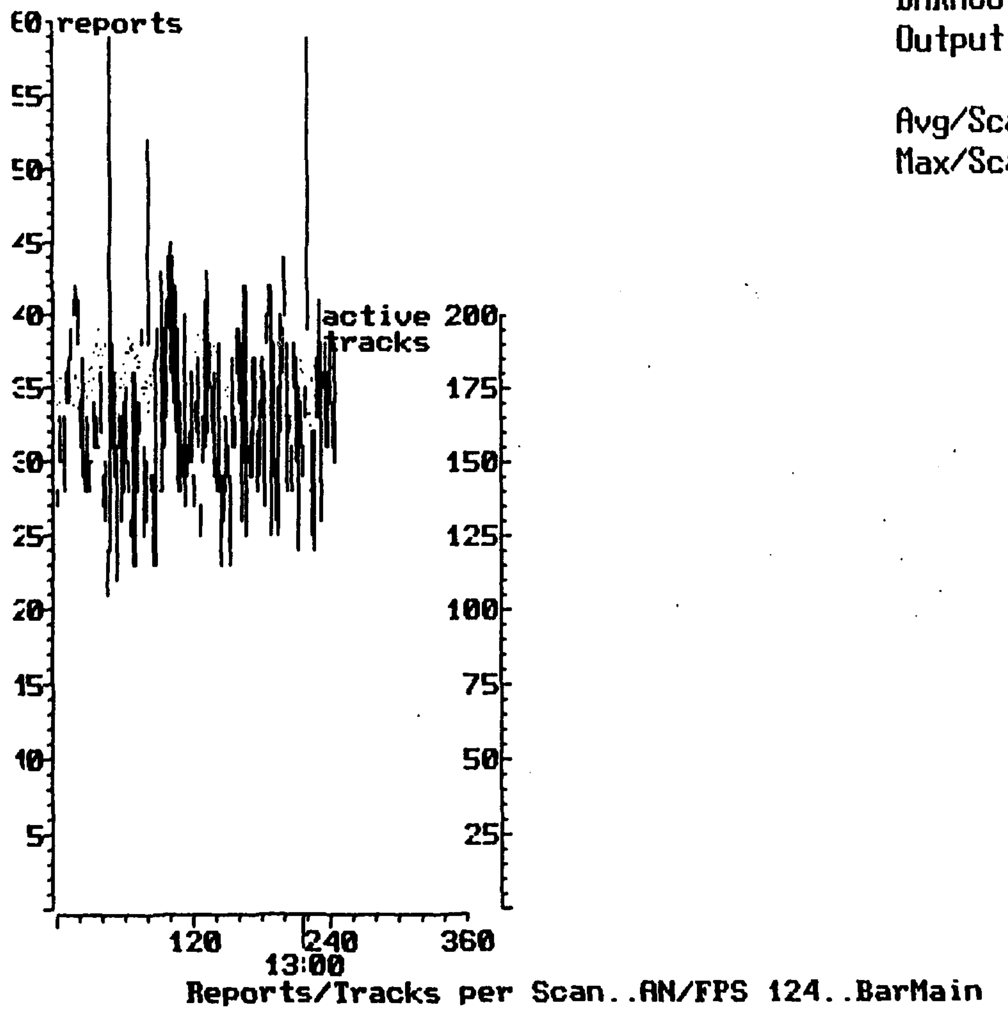


Figure B-65. AN/FPS-124 JSS Data PPI Plot, BARM0815.130



BARM0815.130

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	32.9	175.4
Max/Scan=	59	195

Figure B-66. AN/FPS-124 JSS Data Output Summary, BARM0815.130

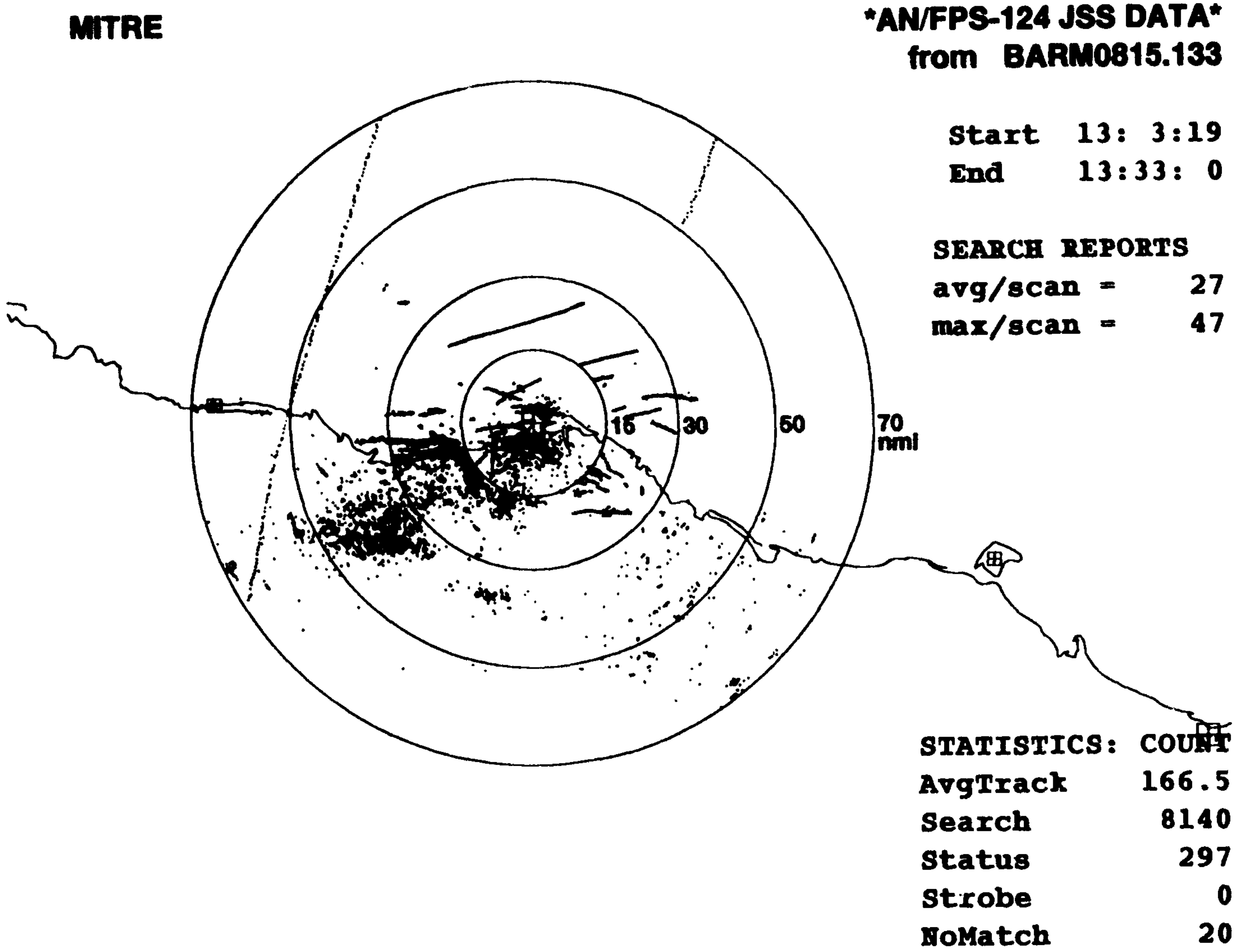


Figure B-67. AN/FPS-124 JSS Data PPI Plot, BARM0815.133

BARM0815.133
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	27.4	166.5
Max/Scan=	52	193

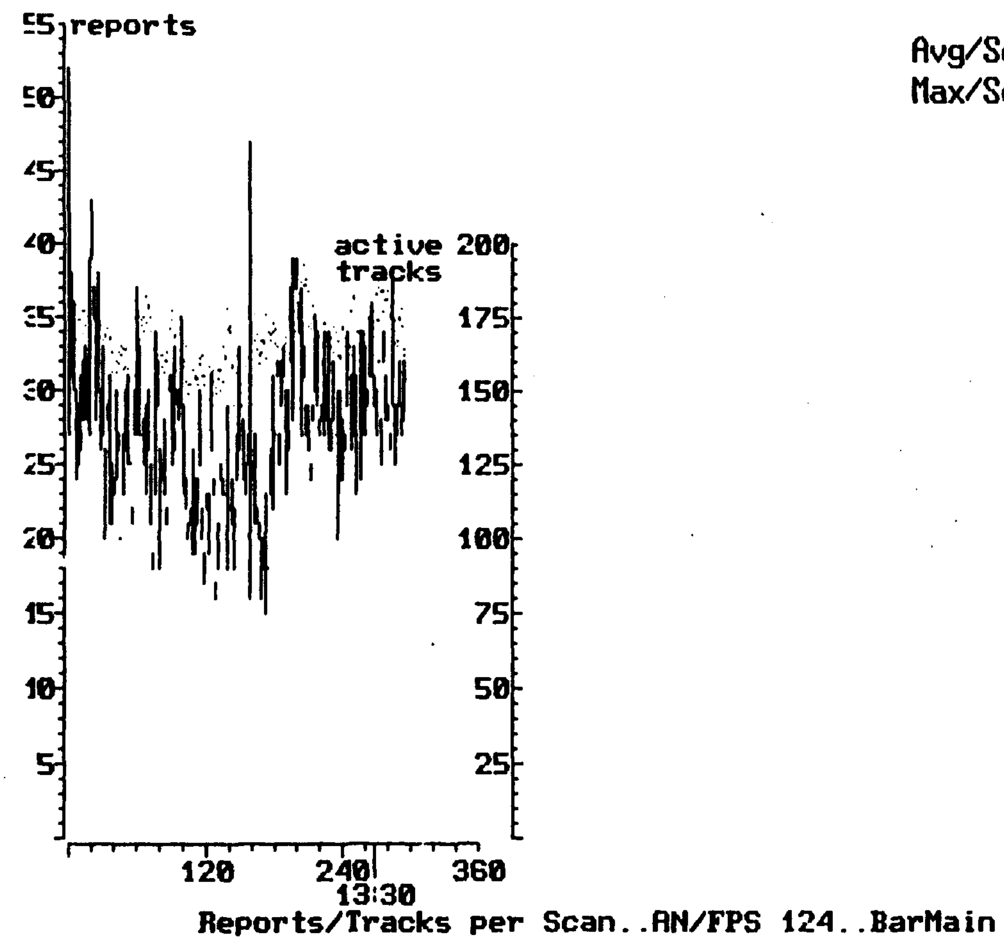


Figure B-68. AN/FPS-124 JSS Data Output Summary, BARM0815.133

APPENDIX C

MODIFIED MISSION SOFTWARE PPI PLOTS

The following PPI plots and scan history graphs were collected during a 22-hour period on August 15 and August 16, 1990 with the modified mission software. The velocity threshold was set at 60 knots.

MITRE

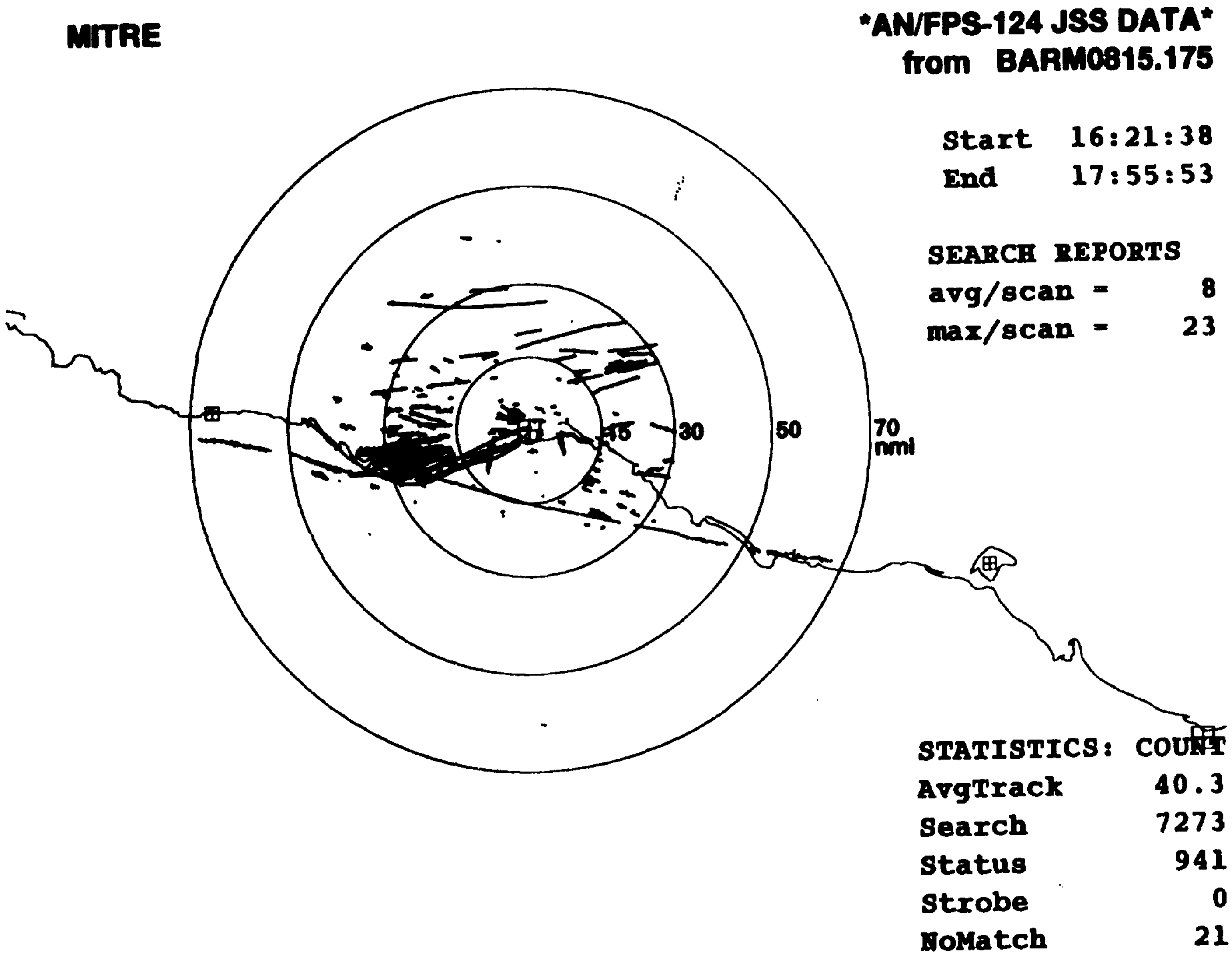


Figure C-1. AN/FPS-124 JSS Data PPI Plot, BARM0815.175

BARM08'5.175

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	7.7	40.3
Max/Scan=	23	62

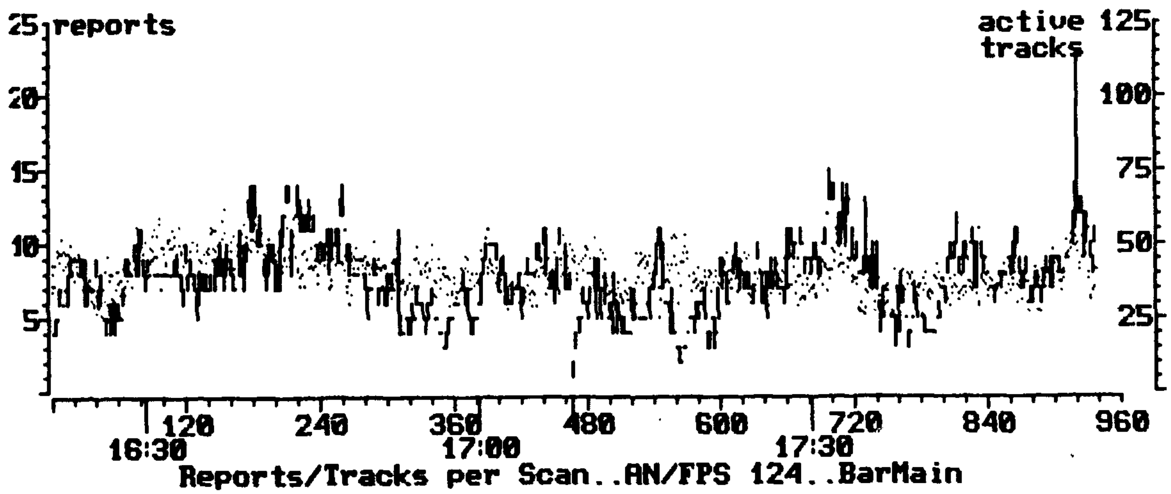


Figure C-2. AN/FPS-124 JSS Data Output Summary, BARM0815.175

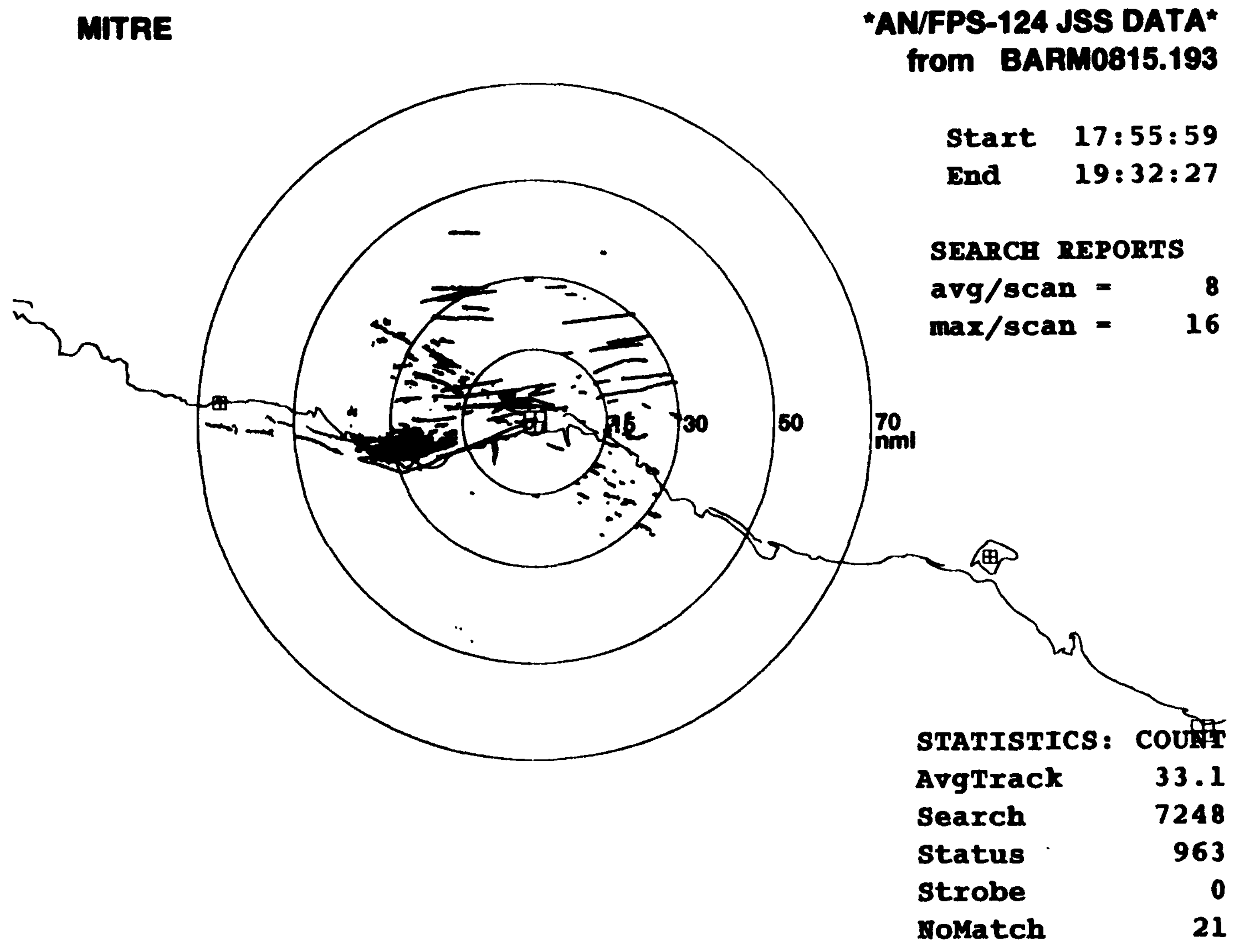


Figure C-3. AN/FPS-124 JSS Data PPI Plot, BARM0815.193

BARM0815.193
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	7.5	33.1
Max/Scan=	16	51

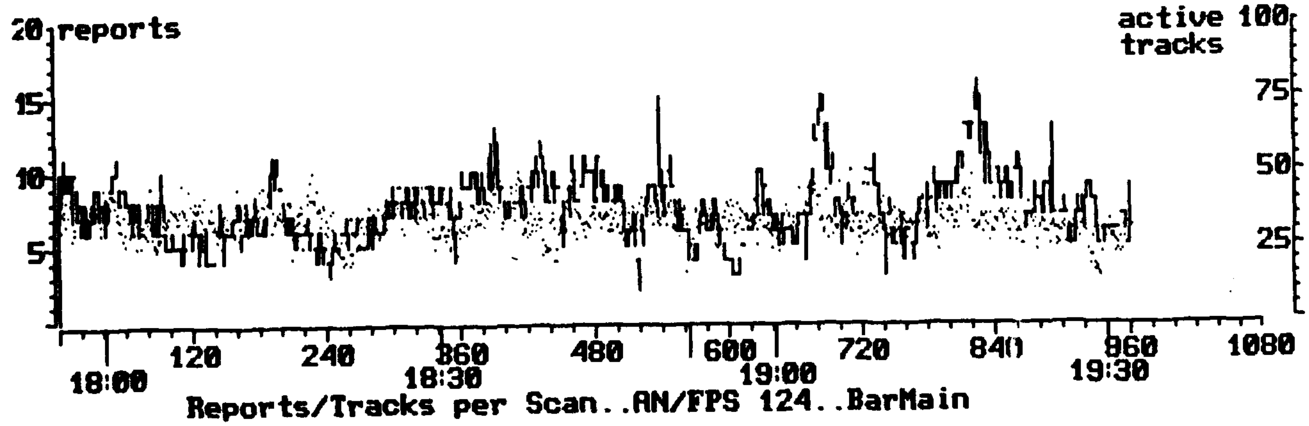


Figure C-4. AN/FPS-124 JSS Data Output Summary, BARM0815.193

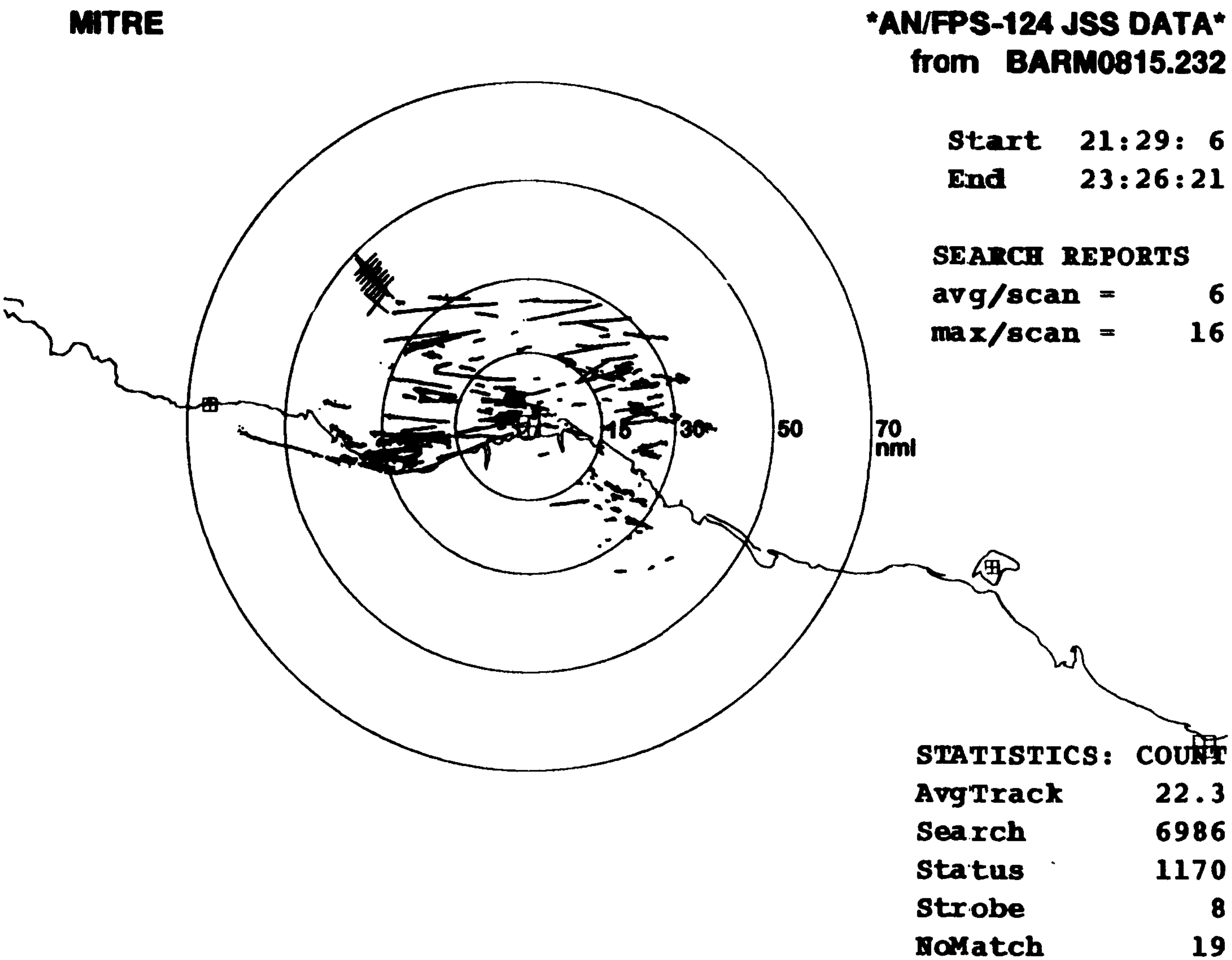


Figure C-5. AN/FPS-124 JSS Data PPI Plot, BARM0815.232

BARM0815.232

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	6.0	22.3
Max/Scan=	16	39

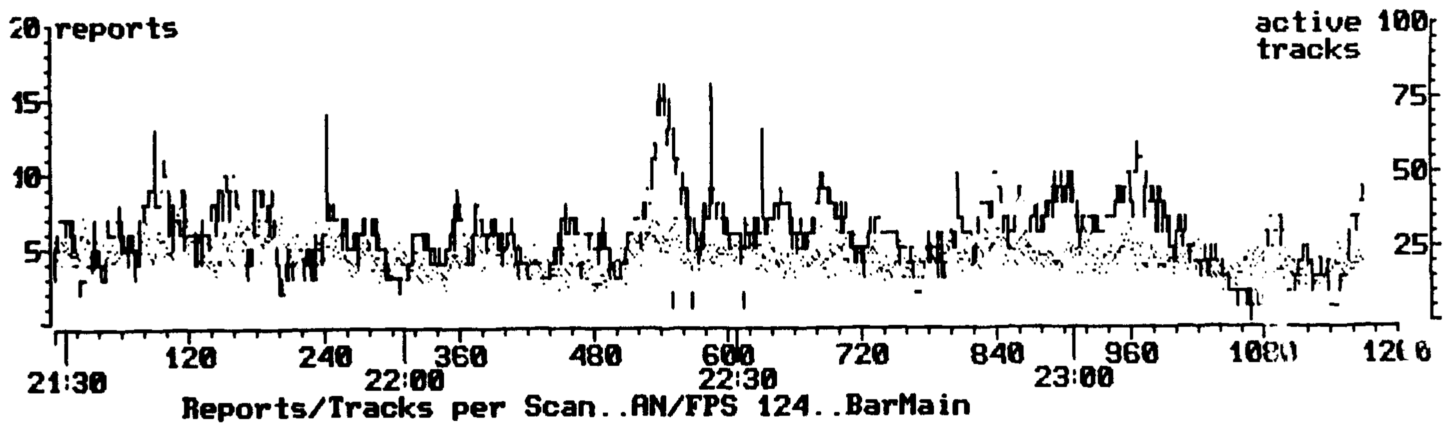


Figure C-6. AN/FPS-124 JSS Data Output Summary, BARM0815.232

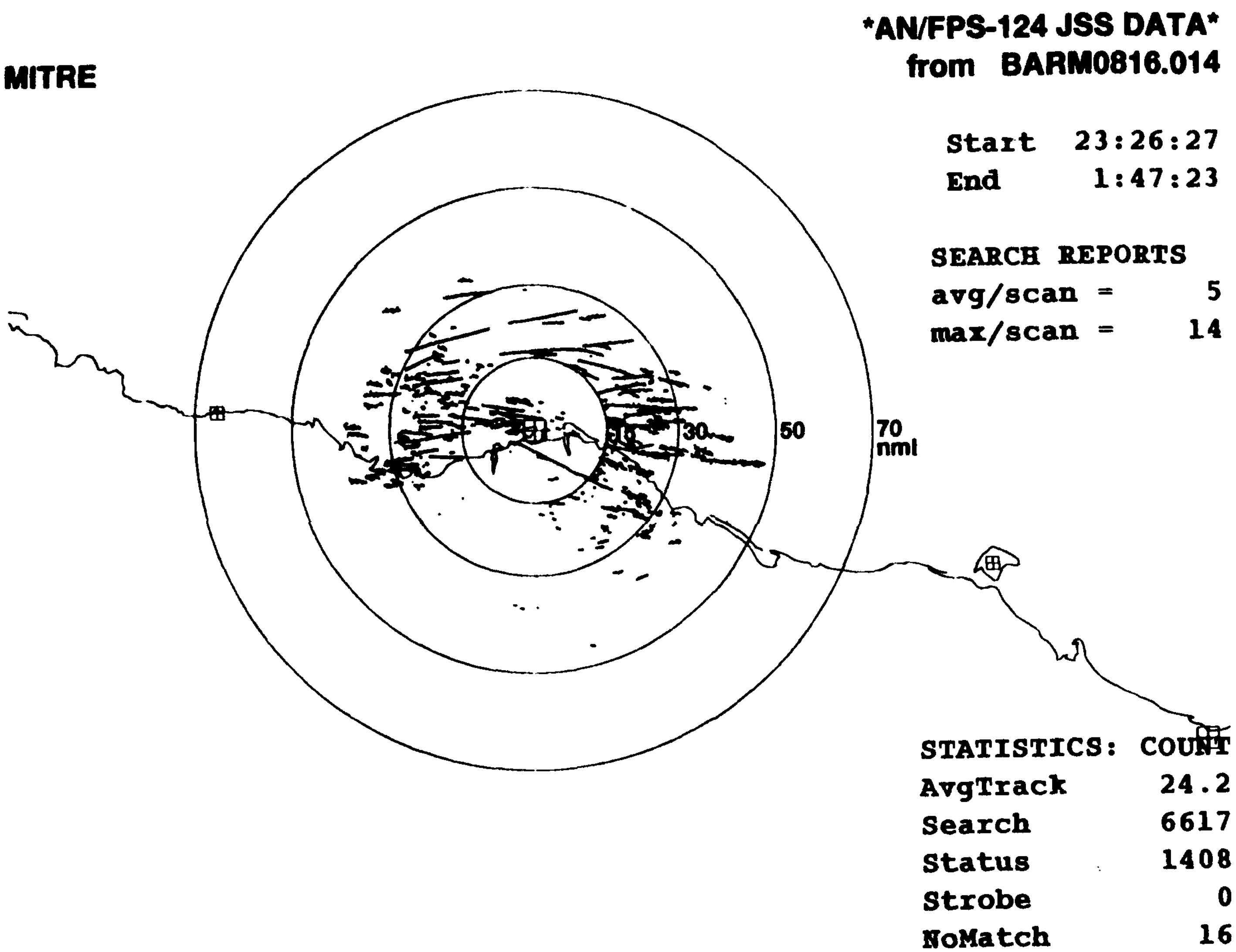


Figure C-7. AN/FPS-124 JSS Data PPI Plot, BARM0816.014

BARM0816.014

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	4.7	24.2
Max/Scan=	14	43

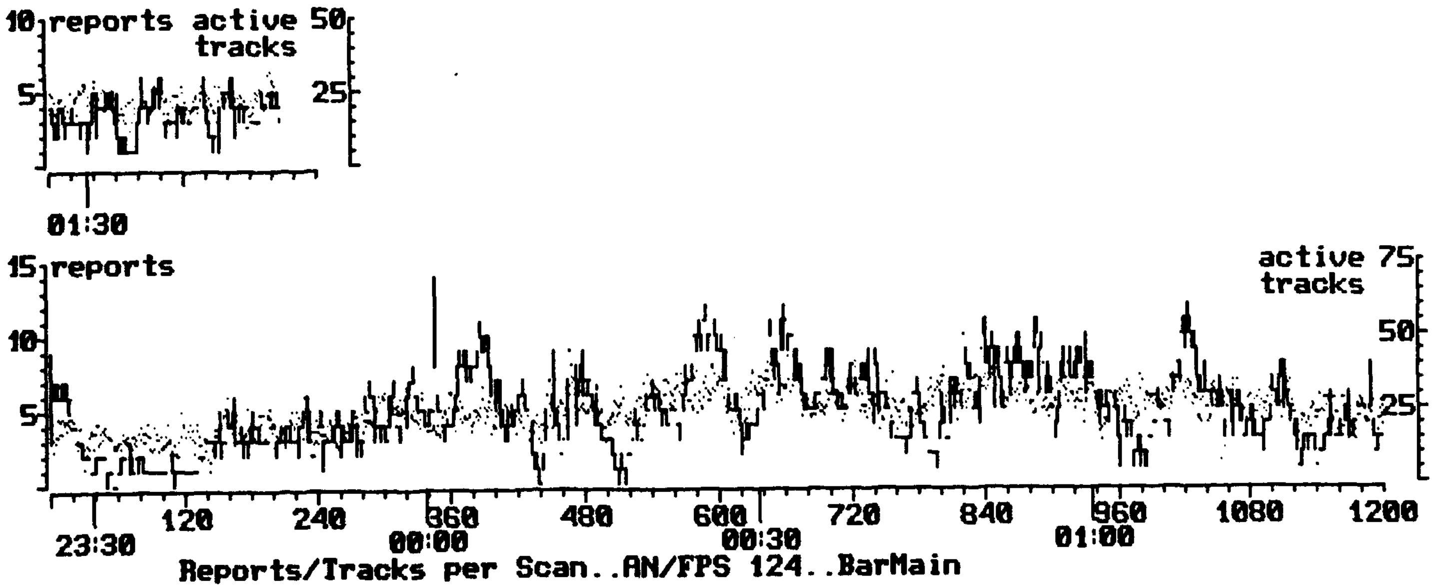
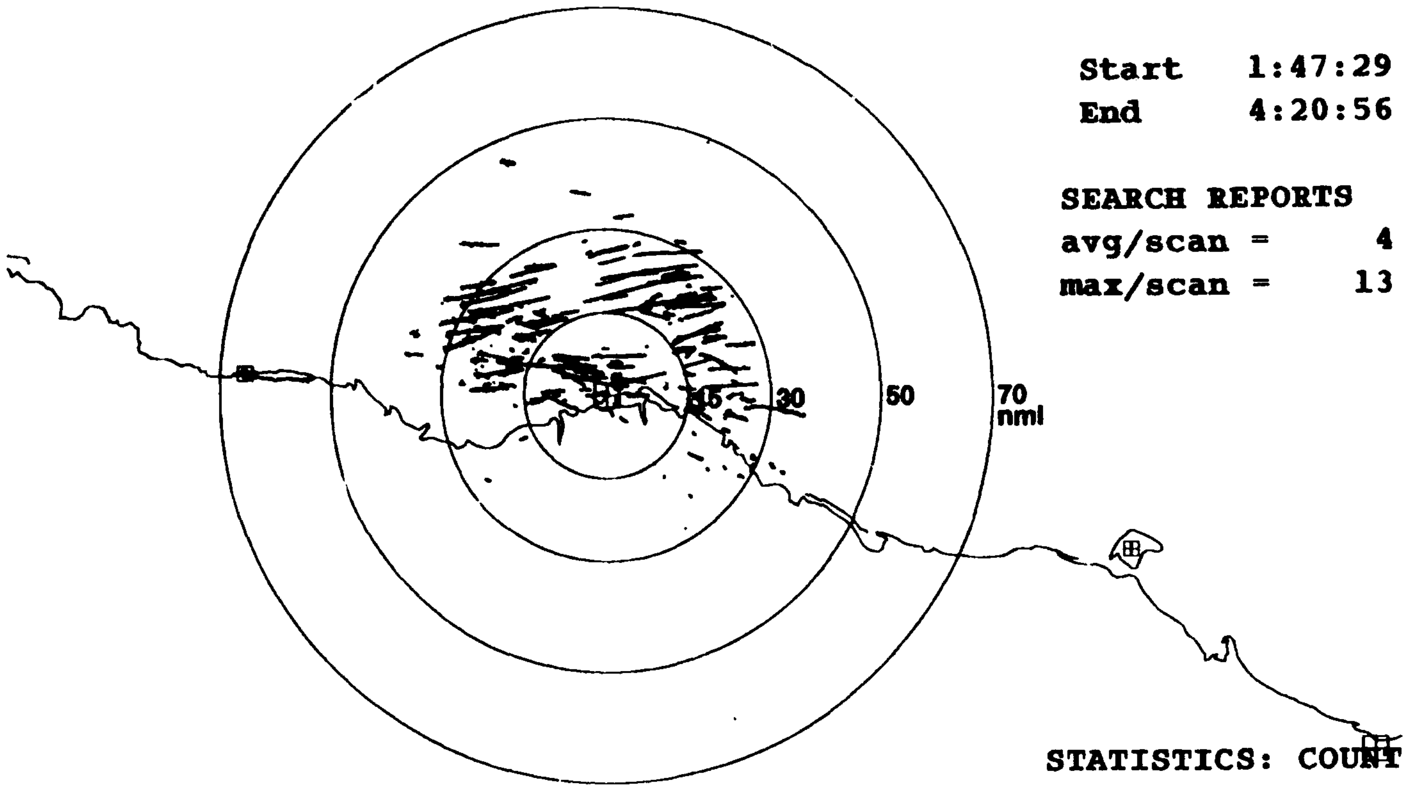


Figure C-8. AN/FPS-124 JSS Data Output Summary, BARM0816.014

MITRE

AN/FPS-124 JSS DATA
from BARM0816.042



Start	1:47:29
End	4:20:56

SEARCH REPORTS

avg/scan =	4
max/scan =	13

STATISTICS:	COUNT
AvgTrack	20.0
Search	6461
Status	1531
Strobe	0
NoMatch	14

Figure C-9. AN/FPS-124 JSS Data PPI Plot, BARM0816.042

BARM0816.042
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	4.2	20.0
Max/Scan=	13	36

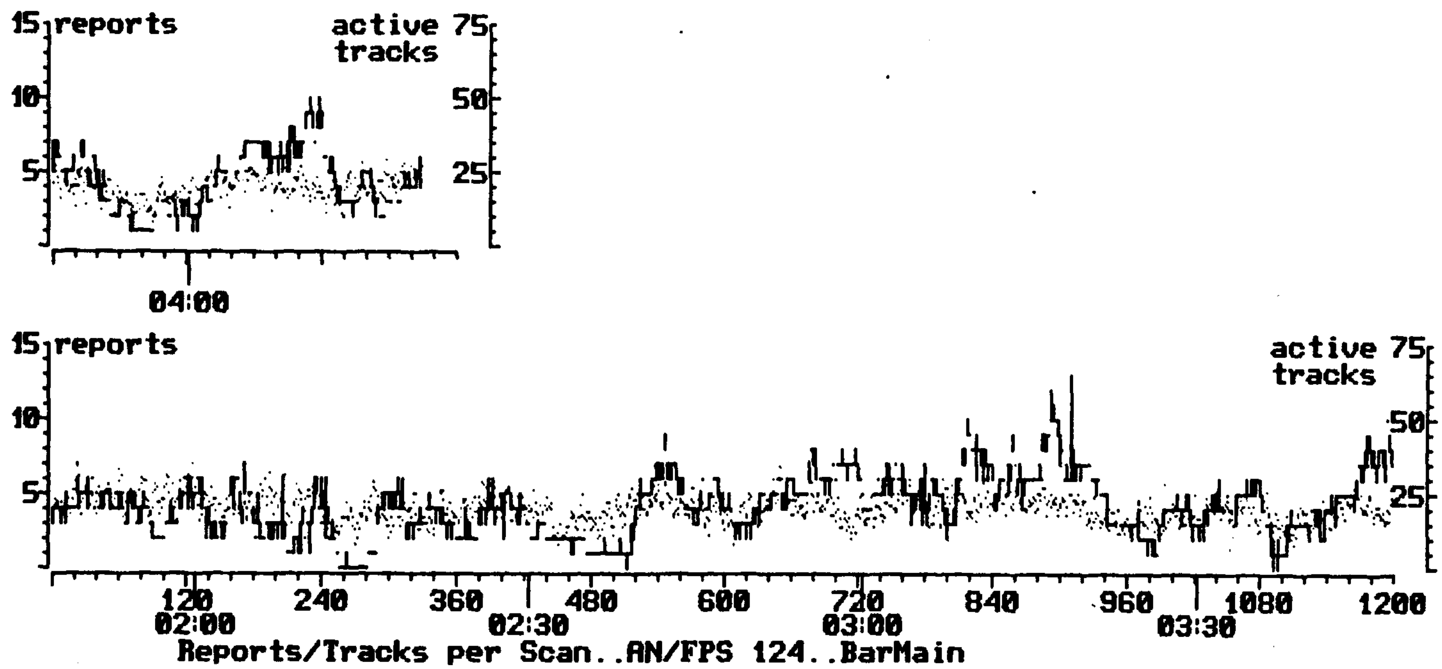


Figure C-10. AN/FPS-124 JSS Data Output Summary, BARM0816.042

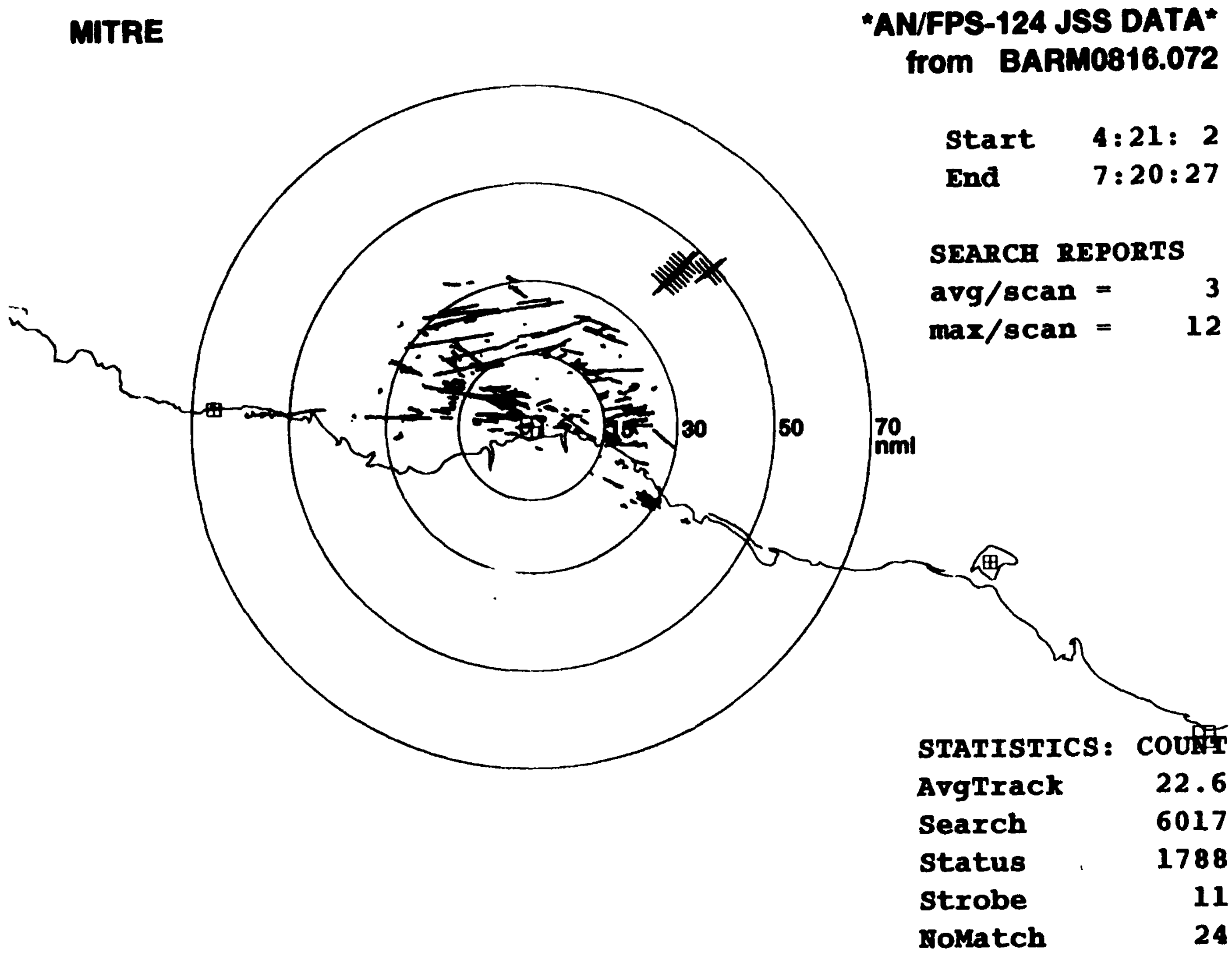


Figure C-11. AN/FPS-124 JSS Data PPI Plot, BARM0816.072

BARM0816.072
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	3.4	22.6
Max/Scan=	12	48

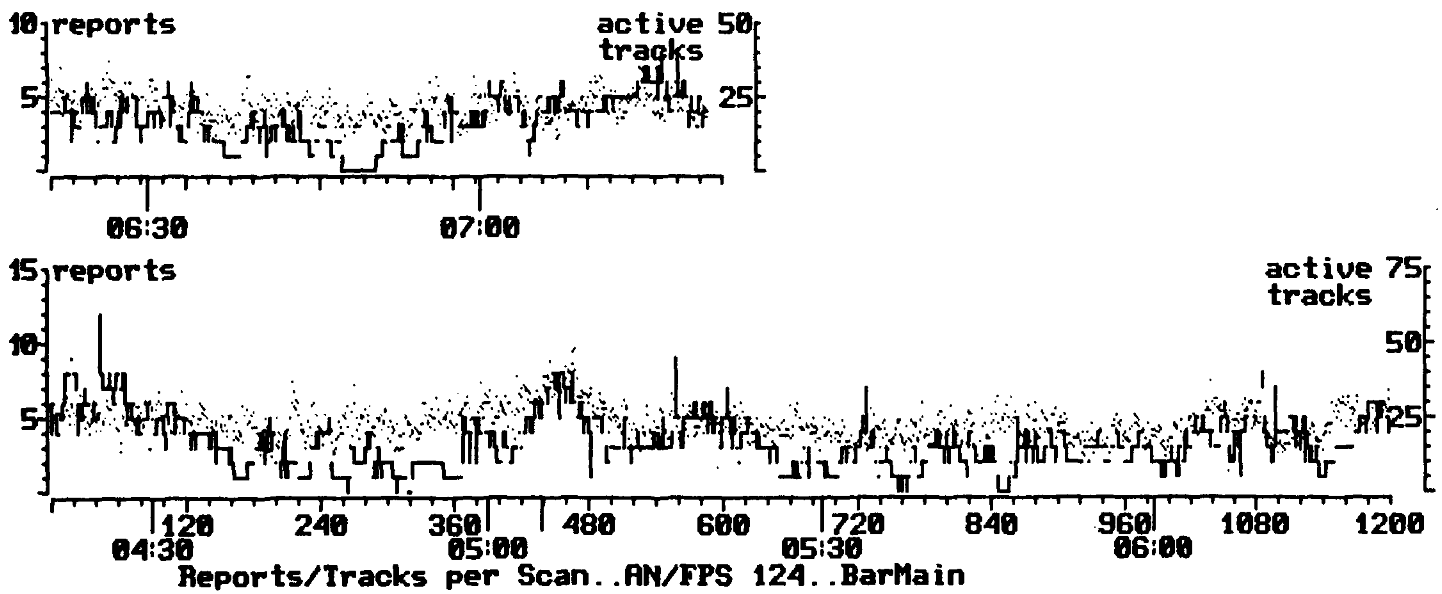


Figure C-12. AN/FPS-124 JSS Data Output Summary, BARM0816.072

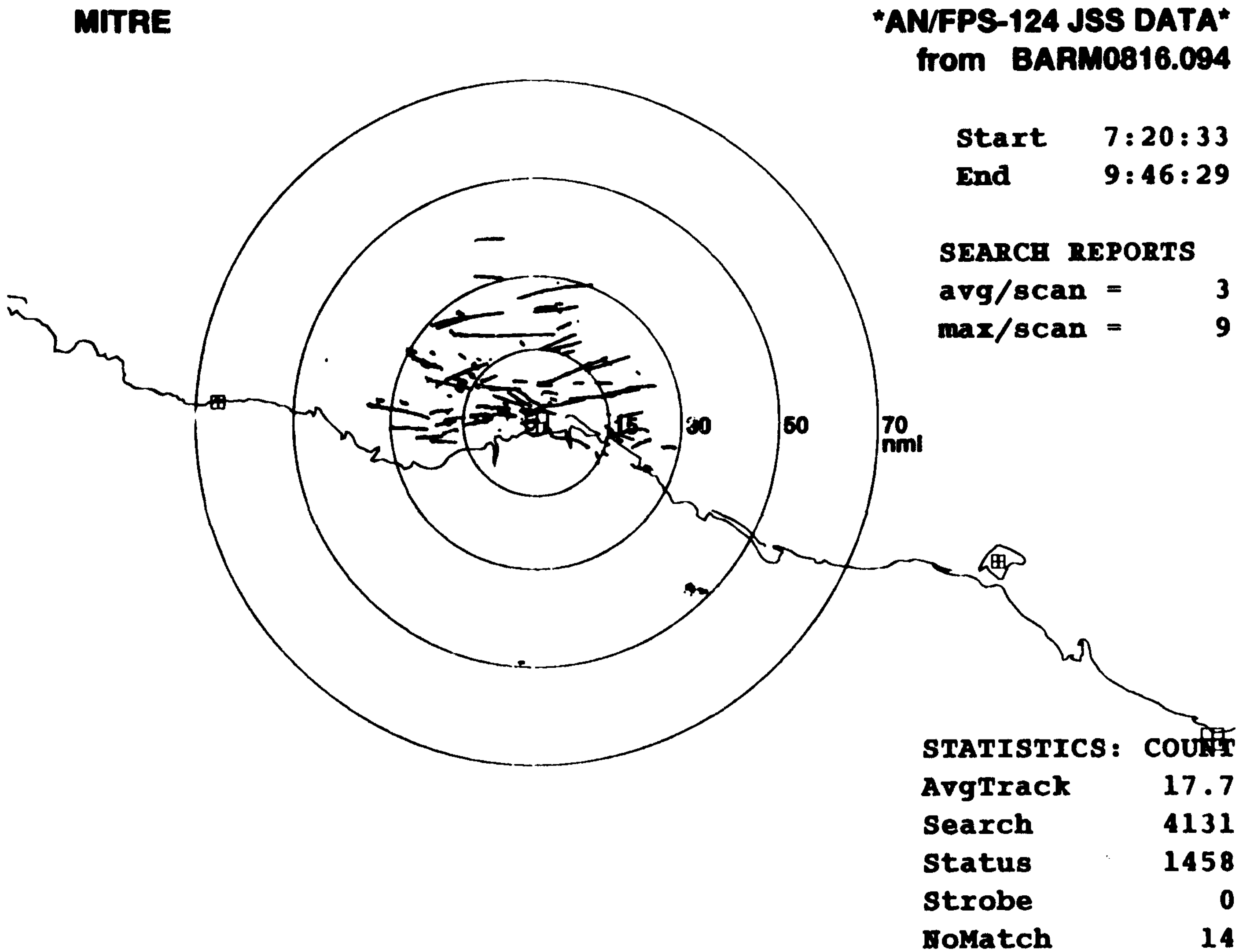


Figure C-13. AN/FPS-124 JSS Data PPI Plot, BARM0816.094

BARM0816.094
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	2.8	17.7
Max/Scan=	9	37

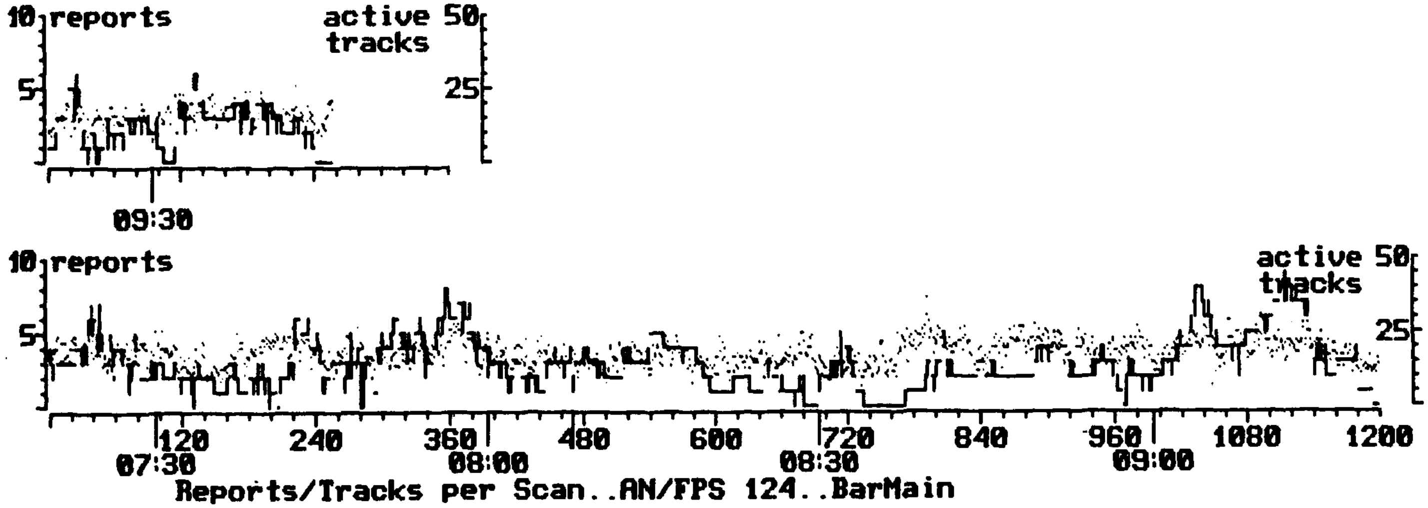


Figure C-14. AN/FPS-124 JSS Data Output Summary, BARM0816.094

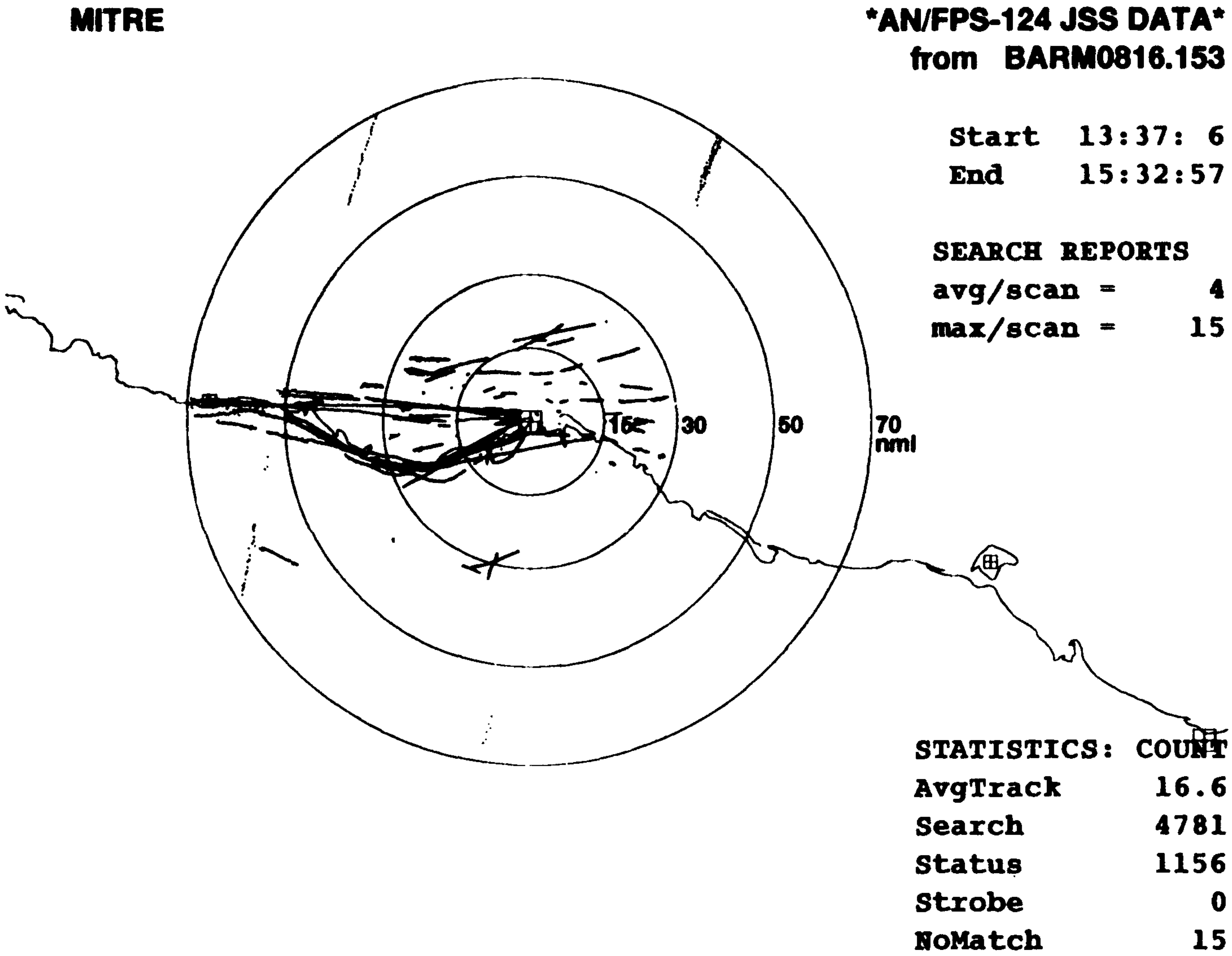


Figure C-15. AN/FPS-124 JSS Data PPI Plot, BARM0816.153

BARM0816.153

Output Summary:

	..Reports....	Tracks..
Avg/Scan=	4.1	16.6
Max/Scan=	15	32

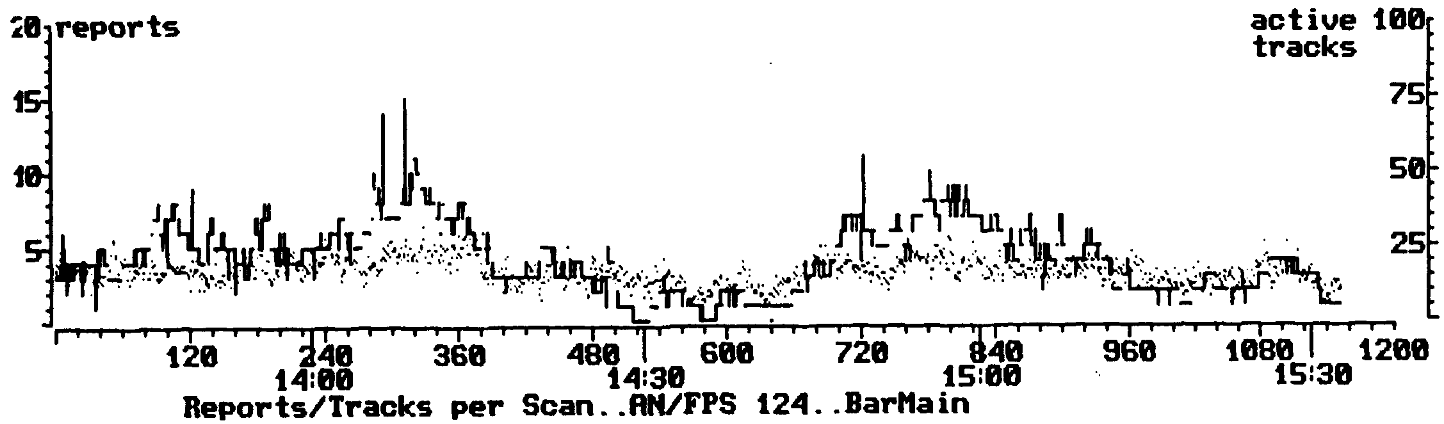


Figure C-16. AN/FPS-124 JSS Data Output Summary, BARM0816.153

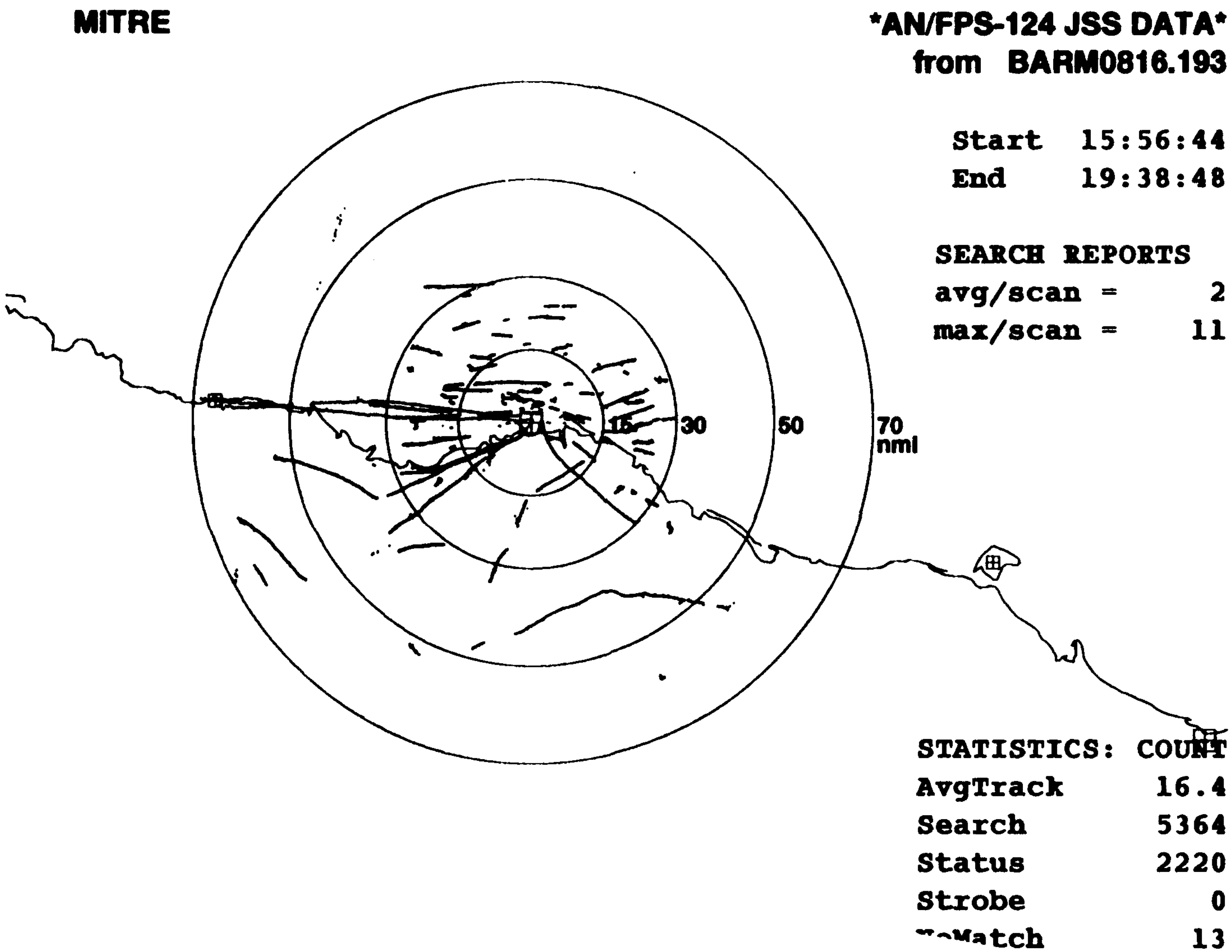


Figure C-17. AN/FPS-124 JSS Data PPI Plot, BARM0816.193

BARM0816.193
Output Summary:

	..Reports....	Tracks..
Avg/Scan=	2.4	16.4
Max/Scan=	11	37

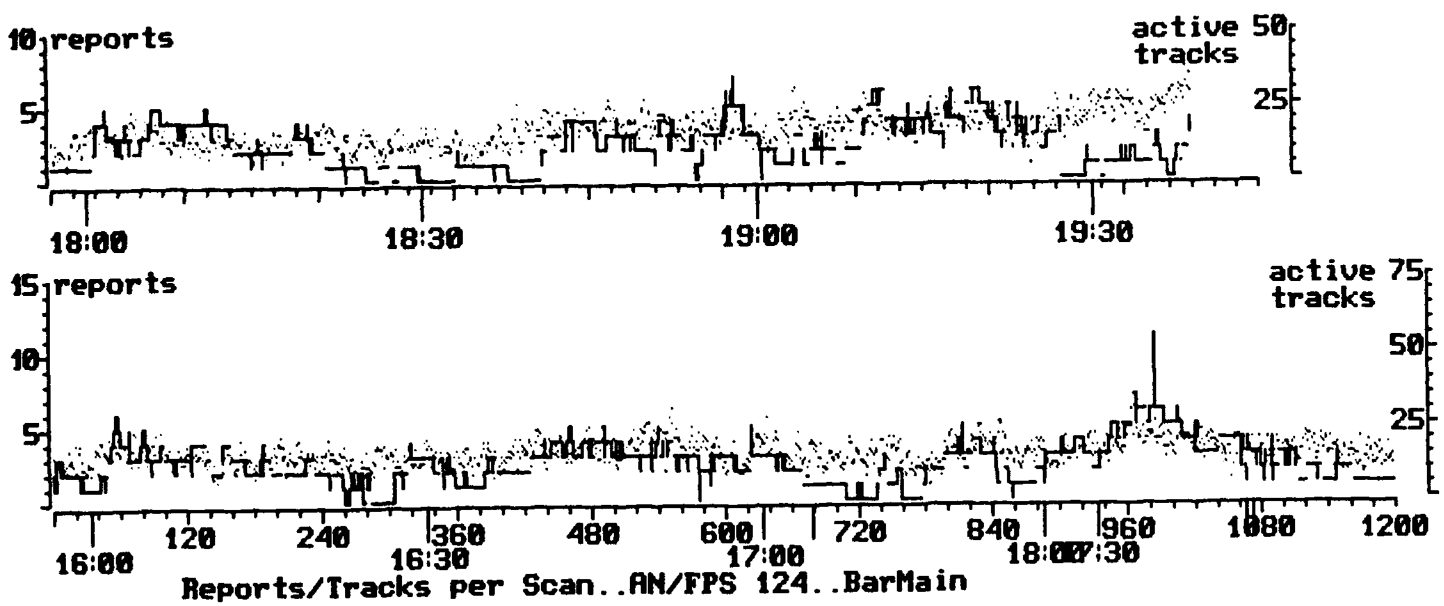


Figure C-18. AN/FPS-124 JSS Data Output Summary, BARM0816.193